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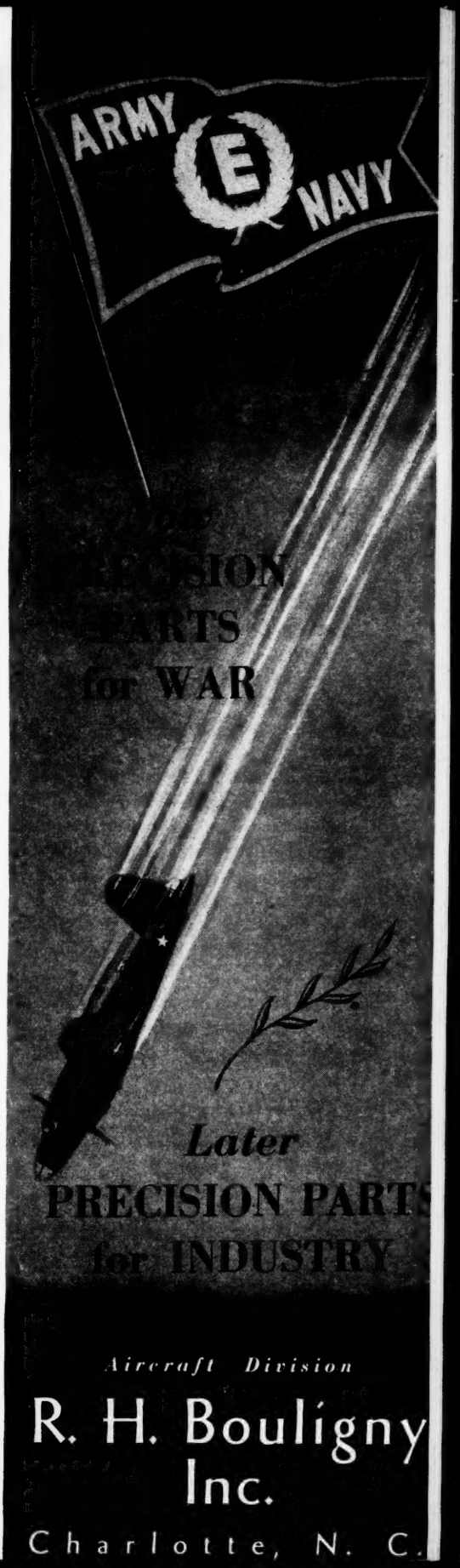

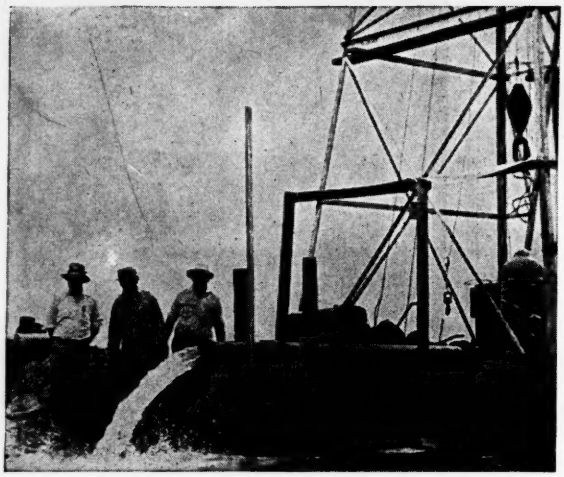

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Little Grains of Sand

"Little drops of water, little grains of sand,
Make the mighty ocean, and the pleasant land."

Congress should clarify immediately the reenstatement provisions of the Selective Service Act as they apply to veterans returning to civilian life. A discharged soldier wants a job not an argument. He probably has had plenty of fighting. He should have the opportunity to return to his old job without any "ifs, and buts" no matter whom he may displace.

In 1925, a Harvard professor wrote: "Since war is always possible and since modern warfare involves the intensive use of coal for the manufacture of explosives, France is in a .... desperate case.... Those who live under happier material conditions do not in general realize the difficult position of the French nation, exposed as it is, to constant menace from the fecund millions across the Rhine. In 1910, Germany mined two-hundred-and-twenty-one-million tons of coal, while France raised only thirty-eight-million tons from her mines."

Prophetic words, these! They emphasize the oft-repeated statement in this country that while coal cannot win a war for us, wars cannot be won without it. They emphasize too, the value to this country of our vast coal resources and the efficient, productive coal mining industry which last year raised not thirty or forty-million tons or two-hundred-million tons, but over six-hundred-million tons to the earth's surface—more coal than was ever mined in any country in any year in history.

There is no secret about the productiveness of the American coal industry. It is productive because it is owned and operated by private citizens.

The fact is that, if our budget were in balance, taxes would be so slightly deflationary or inflationary that their effect would scarcely be traceable. The money paid by citizens for the operation of government is, in turn, pumped back into the income stream about as rapidly as it is collected. As long as the budget is in balance, the processes of taxing and spending have little effect on the level of prices and wages. Yet the government's efforts to control the economy through fiscal juggling would be ineffective unless there were a large and growing public debt.

—*Prof. Harley L. Lutz.*

Last month's issue of MANUFACTURERS RECORD presented an article on the new silk industry at Mineral Wells, Texas.

Silk cocoons have been produced successfully throughout the United States for more than a century. The *Arkansas Gazette* quotes Census reports of 1840 showing 61,652½ pounds produced in the country. The silk worm is a hardy fellow who does

(*Continued on page* 12)

"What Enriches the South Enriches the Nation"

COMPULSORY ARBITRATION

The introduction of the Burton-Ball-Hatch bill in the Senate has led many a sincere man to ask himself a direct question: "Do I believe in compulsory arbitration for labor disputes?"

Let no man condemn compulsory arbitration in labor disputes without realizing that by so doing he condemns the underlying principle of the United Nations Charter.

Every man, in or out of public life, who does not bury his head in the sands of political expediency or cowardice, knows that the goal of every labor union is monopoly, and that the closed shop is monopoly. In February of this year we wrote: "The organization of any labor union constitutes a direct attempt at monopolistic control that affects the economic lives of all of us. The closed shop represents the consummation of that objective. It is absolute monopoly and can be called by no other name."

Let us assume, whether we believe it or not, that a labor union is a monopoly that results in the public good as do other monopolies such as railroads, telephone companies and public service corporations. Granted this assumption, the union, as a monopoly, should be subjected to government controls for the public good, just as other business organizations are subjected. To make this point even more clear, it is well to remember that organized labor is an integral working part of each such public utility.

An American, of his own free will, should be permitted to promote or join any organization that is not inimical to the general welfare. If he wants to become a member of the Holy Rollers, to join the American Labor Party or the Liberty League, the Sons and Daughters of I Will Arise, a company to acquire the green cheese mining concession from the man in the moon, or a labor union, he should be free to do so. But when the acts of such an organization affect the welfare and happiness of others who are not its members, it becomes necessary that the potential possibility for such acts be circumscribed by government, acting in the interest of and by the authority of all of the people.

A strike is an aggressive act aimed at a business partner who is erroneously considered to be a social antagonist. It attempts to gain, by coercion, a selfish end. It is declared in order to achieve a result that seemed impossible by the exercise of good will, reason and common understanding. A strike not only affects the employer against whom is is called. It also interferes with the steady flow of goods or services that the public has a right to expect and demand.

The calling of a strike by a labor union is a declaration of economic war. A strike, no matter how "peaceful," is economic war. As such it is wasteful and destructive. It is even more than that. It is dangerous because it contains a germ which if unchecked, can infect the body politic with the virus of rebellion. Communists are well aware of the potentiality of this germ.

If it is assumed that there is antagonism between labor as a class and management (and we are not willing to admit that labor is a class or that, even if it were, labor is management's opponent) the feeling of antagonism between them cannot possibly be as deep seated as that which the centuries have built up between nations with different languages, histories and ideologies. Yet at this moment, and with national unanimity, we look forward with hope to an era of peace between all nations under the international laws of the United Nations Charter.

We look forward with hope to world-wide peace because representatives of the nations of the world have completed the drafting of a charter that contains bones, sinews and muscles into which cooperative peace-loving generations can breathe perpetual life. This charter not only writes international law. It contains the power to enforce its law. It does not ignore the possibility of aggression. It plans to curb the aggressor. There is no place in the framework of the United Nations Charter for a warlike nation with ambitions of conquest. There is no place in it for the nation that plans to exploit another for its own selfish ends.

If the United Nations are to fulfill the hope of a strife-torn world for ultimate peace, each nation must sacrifice a portion of its sovereignty to protect the sovereignty of the integral parts of the whole.

If a fair and lasting peace can be achieved by law between nations it is logical to assume that internal peace can be attained between Americans striving "With malice toward none; with charity for all; with firmness in the right, as God gives us to see the Right."

FULL PRODUCTION

An apparently wholesome clarification of "full employment" is emanating from sources close to the Truman Administration. Previously no one seemed to have anything like a clear idea of how such a seemingly radical proposal could be made to jibe with the American free enterprise system.

According to the interpretation believed to be held by the President, the term "full employment" would appear to be an unfortunate misnomer. The vague terminology shrouds the real purpose in needless complexity. The true import of the movement, as outlined by Administration spokesmen, would more aptly be titled "full production."

There is a more practical approach to the employment question than the attempt to adopt the impossible idea of inefficient dreamers who seem always to have in mind a new era of theorizing.

The sinister nature of such theorizing is fully portrayed in a program proposed for England by Sir William Beveridge. "Full employment," Sir William states, "cannot be won and held without a great extension of the responsibilities and powers of the State, exercised through organs of central government." He explains that Full Employment is a socialistic procedure in which industries may be transferred from private to public ownership, private property abolished if "shown necessary by experience or argument," and in which wage control is made a function of government.

Economist Dr. Virgil Jordan interprets the Beveridge program in this manner: "The government will give you full employment and guarantee your income provided you will let it use your money as it pleases; if you will buy for your own use what it tells you at the prices it fixes or let it do the buying for you; if you will save as much as it says and let it invest it for you as it pleases; if you will work at whatever it says for whatever it will pay; and if you will read what it says and keep your mouth shut."

Summed up, any plan that puts jobs ahead of production contemplates so sharp an extension of government control over all phases of national economy as to constitute the essence of socialism and abandonment of Americanism.

The American people expect prompt and vigorous action by American business. American business intends to give them that kind of action if permitted to do so. Granted a shift in government aim from interference to helpfulness and encouragement, American business will fulfill that intention.

TWO WAY STREET

"Foreign trade" is becoming an over-worked phrase in American economic circles. Apparently there are those who think of it only in terms of our opportunity to unload our surpluses abroad, thus giving American producers an unlimited market, to the end that this country need never again reach a point of business stagnation, unemployment and depression.

Nothing could be further from reality. Worshiping the fetish of foreign trade is destined to bring cruel disillusionment. Foreign trade is nothing more than an exchange of American surpluses for foreign surpluses.

"But," it will be said, "many devastated countries need our goods but have no surpluses to exchange. We can let them have such goods as exceed our own needs now, take their I.O.U.'s, even if our ships come back in ballast, until they get their factories going and create surpluses to ship to us in exchange for their notes.

As a matter of compassion such an attitude appears commendable, but it is only temporary. We can afford to feel generously compassionate only so long as we feel prosperous; but when the time comes for foreign countries to repay us, when they start redeeming the paper we hold by shipping us their surplus goods, we shall find ourselves holding our own surpluses and theirs too; our people will be in the same plight as in the early 30's, in the midst of plenty of goods but without jobs or incomes with which to purchase them. Without funds we, individually, will be no more able to enjoy the plenty that will surround us than is the destitute foreigner who is today the object of our pity.

What we are accustomed to regard as a "sale" of American goods abroad is thus revealed in its true light as not only a "sale" but also a "purchase" by us of foreign goods. If we lack something produced abroad, and have a capacity for its enjoyment, such as coffee from Brazil or caviar from Russia, or bananas from Costa Rica, those countries are potential outlets for such of our surpluses as they need, up to the value of what we purchase from them.

Foreign trade is a normal, healthy, and a desirable thing only to the extent that it increases the enjoyment of those on each side of the transaction; just as between two neighboring families, the one having poultry but no cow exchanges eggs for the butter of the neighbor whose position is reversed.

The confusion is not surprising, however, since for years we have been bestowing favors on nations by extending shipments of American goods to those whose alignment we sought in the game of international power politics. When, some day, they come to "pay us back" with goods or services that throw Americans out of jobs, we shall become aware that "foreign trade" is not a one-way street.

DOORS TO PROGRESS

If there ever was a section of the world that should be bouyant with confidence it is the South. This becomes vividly apparent upon considering the amazing strides made by the South since the turn of the century.

The Blue Book of Southern Progress reveals that between 1900 and 1943 Southern property values increased 360 per cent—from $17,919,187,000 to $82,448,342,284; manufactured products jumped 600 per cent in value, $1,564,183,000 to $11,190,269,918; and income from farm products was boosted nearly 300 per cent from $1,564,069,000 to $5,846,366,000.

Much is heard about future diversification of Southern crops. As a matter of fact, diversification got under way years ago and has already made steady progress toward a sound, well-rounded agricultural program. Grain acreage has been enlarged and has flourished. In 1943 the South produced 721,846,000 bushels of corn, 160,881,000 bushels of oats and 102,080,000 bushels of wheatt. Southern farmers have embarked upon cattle raising and dairy farming on a large scale. Over 28 million head of cattle valued at $1,472,508,000, were reported for the South in 1943. A Guernsey cow recently brought $17,000 at a North Carolina auction sale. Sales at $500 to $5,000 have not been uncommon over the past several years.

Dairy farming in the South has expanded tremendously in the last three years, and it is conceivable that, after the war, new markets and uses for dairy products will be developed. However, at present, thousands of Southern families do not have all the butter and milk they can use. Satisfying their needs in an ever expanding market. Casein coatings, curtailed 15 per cent by war restrictions, can absorb millions of pounds of milk. Present supplies of ice-cream and related commodities are sufficient to satisfy only a portion of the demand.

Today, cotton acreage is about half what it was in 1900; yet pounds per acre and total number of bales produced annually have increased, attesting to noteworthy progress in technological procedure and improvement of seed strains. Methods used in the farming of grain and other products are keeping step technologically with cotton cropping.

The development of markets for farm products of course presents problems. There will be a lot of cotton to dispose of after the war but the war has proved that cotton is still a giant among textile fibers. New competitors have entered the field of fabric production, but it is the need for cotton products that has procurement agencies in despair. Recognition of cotton's basic utility has been accentuated rather than dimmed by contrast with other fabrics. A world denuded of clothing by war will be pleading for cotton fabrics for years to come.

The South today, more clearly than in the past, senses the benefits to be gotten from establishing her own factoriets to utilize natural resources instead of sending them elsewhere to be processed. The post-war era looms as a period of opportunity. Science has opened so many doors to progress that research for factory owners and farmers is seen as it should be—a vital necessity. Thus will come about the fullest utilization of the natural wealth given by nature to this favored region.

Economic conditions after Victory will open many doors to Southern products. Granted that we do not sell freedom of enterprise for a mess of pottage, the South may well look forward to truly great progress.

Approximately five million young men left the South after the Civil War to seek their fortunes in other sections. This need not, it must not, be the case after this war. Opportunity at home awaits Dixie's returning fighters. The opportunity to welcome and encourage them awaits the business men of the South.

OPA's Function

Patriotism on the part of industry and the public as consumers has led us all to accept price regulation for as long as it may be necessary to combat actual wartime threat of inflation. This was the purpose for which OPA was set up, and should be the only purpose for which it is permitted to exist and extend into the gap between war and civilian production.

OPA, however, has arrogated to itself an additional role. On its own initiative, and with no known legal authority, it has undertaken a policy of regulating profit as well as prices. On October 6, 1944 the Price Administrator said in a memorandum on "Reconversion Pricing":

"We shall continue to use the same pricing standards . . . we shall expect absorption of cost increases on less profitable items, as well as on more profitable items, by industries which manufacture several lines and whose total profits are satisfactory."

More recently, on April 7 this year, he reiterated his intention of continuing "the narrowing of margins over production costs."

There are two things wrong with this policy in administering an Act that specifically states that the prices to be set shall be "fair and equitable." The policy itself is unfair. And its practice is inequitable.

If profit control is defensible at all, the medium for such control should be established by act of Congress. The excess profit provision of the tax law was designed for this purpose.

OPA's function, under the law, is entirely unrelated to profits as such. The Price Control Act was designed to meet a wartime threat caused by an oversupply of purchasing power and an undersupply of consumer goods. Beyond the scope of meeting this threat, OPA has no legal authority, and any price it sets which compels the absorbtion of increased cost of production is not a fair price. The deliberate squeezing of profit margins by an agency whose authority does not extend into that field is inequitable, if not illegal.

Aside from the moral or legal aspect of OPA's policy, it presents a definite menace to the welfare of the nation in its inexpediency. It will serve to defeat the purpose for which the agency was established, namely to maintain balance between purchasing power and available goods. The cost absorption policy arbitrarily denies profit consideration for specific products. While some of the products turned out by a firm may show a wholesome profit, others may be maintained at non-profit levels so long as the overall profits of the firm approximate those in the period 1936-1839. This policy, extended into the reconversion period, entirely overlooks the fact that war contract profits will gradually fade from the scene and every commodity produced will be on its own. Products which do not bear a fair profit will not be produced in sufficient volume to wipe out the excess of buying power over supply. Meat is one current illustration of the evils inherent in this policy. Need more be said?

Science and the South

by

Dr. Wilbur A. Lazier

WE have reached a decisive moment in history technologically as well as politically. Acceleration of research activities and advances in scientific thought and experiment have given man the power to stamp out forever the ravages of disease, starvation, exposure and want. We are equally cognizant of having developed powers that if unleashed in some future war perhaps could wipe humanity from the face of the earth. While the power of science knows no geographical boundaries, the capacity to apply it has happily for our welfare reached its highest state of development under the conditions of freedom of thought and initiative unique to our own particular way of life.

Dr. Charles F. Kettering of the General Motors Corporation has said that, "research is an effort to find out what we are going to do when we can no longer keep on doing what we are doing now." In the field of applied research activities this definition expresses quite adequately the objectives of research for the postwar period. There can be no victory in this war if its end brings widespread unemployment and want in our land. Many jobs must be created by industry after the war in order to employ our returning soldiers and to provide new jobs for those of our war plant workers who wish to remain in industry.

As a research chemist, I invite your attention to the fact that in twenty-five years since World War I, new industries resulting from research have created millions of new jobs that had never been dreamed of before. We can be confident that in view of the peacetime possibilities of the wartime advances in science and technology this performance can be repeated. It is a maxim of research that every new product produces wealth greater than it destroys, for the human need or desire which makes it possible for the new to displace the old gives to the new a greater market than the old ever enjoyed.

It is quite possible, however, for us to be caught napping. Already, we of the South are far behind other regions in our technological resources. The South can no longer permit its vast resources of raw materials to remain unused, but must instead do what is necessary to bring these materials into profitable use for the comfort and enrichment of the region. If we in the Southern area grow only the things in agriculture that we have been growing, and no more cheaply, and use them in the same manner; if we manufacture only the things we have always made, and in the same traditional way; if we use our forests and minerals only as they have been used in the past decades, we shall remain, as we have been, contributors mainly to the prosperity of others.

How can the South meet the challenge of its postwar destiny and provide a research set-up that will be adequate to its needs? First of all, much benefit will be derived in the form of an overflow from the activities of others. Companies like the American Telephone and Telegraph Company, Westinghouse and General Electric Company and DuPont maintain large and efficient establishments for the production of improvements that ultimately benefit everyone. Some companies with research laboratories dispense a brand of research information to their customers and potential customers which although sometimes biased is often of great benefit in helping to improve products and processes. Then there are the centralized laboratories of the Federal Government like the National Bureau of Standards and the U. S. Public Health Service, which are organized to carry on fundamental investigations in the interest of the public generally. With a closer kinship to specific industries we have the U. S. Bureau of Mines, the Forest Products Laboratory, and many others. More recently with regional differences in mind the Congress has established for agriculture the four new Regional Research Laboratories of the Bureau of Agricultural and Industrial Chemistry.

Dr. Wilbur A. Lazier

But these agencies of the government are not enough. They are interested in the more general problems of agriculture and industry. Their findings require local application and an adaption which must in the final analysis be carried out by those who are to profit by the advances made.

It has long been the practice of private industry, especially when in some kind of temporary technical difficulty, to go to the nearest state or city university seeking the services of a specialist. Out of this practice has grown the Engineering Experiment Station or University Research Foundation, providing more formalized service for industry and giving practical research experience to advanced students in scientific or engineering courses. Many schools in the South and elsewhere are for the first time organizing new university research foundations. Commenting on this trend, Dr. Harold Vagtborg, President and Director of Midwest Research Institute, has this to say: "It must be kept in mind that the greatest contribution of the university is in training research men. Some kinds of research are most beneficially pursued in the university laboratory with its

thorough and leisurely attack on problems of a fundamental nature, but the industrial research laboratory is generally regarded as geared to the tempo of industry."

It is to the privately sponsored industrial research laboratory, be it large or small, but multiplied over and over again, that we must look for a real broadside on our regional research objectives. The small business need not feel unduly handicapped. There are advantages in smallness as well as in largeness. Decisions can be more quickly reached and projects more closely scrutinized. Dr. Clyde Williams, Director of Battelle Memorial Institute, asserts: "The major difference between small business and big business is one of history. The one has grown either because it is older or has had more business acumen or was more progressive. Small business is really young, potential, big business. The reason that many small businesses became large is that their managements undertook research and were successful not only in the origination and commercial application of the new development, but also in protecting it under the U. S. patent system." Dr. E. H. Land, the head of Polaroid Corporation, a small company, puts it even more strongly when he says, "No company can afford not to have some scientists on its staff—This bright new world depends on two things: The company msut stay small, the company must be scientific."

Research management is a matter of education and experience, and the uninitiated manager may quite naturally feel confused and unequal to his research responsibilities. A good place to begin a company research program is therefore in a research institute. Such an organization can provide valuable counsel in defining suitable research objectives, sound judgment in the selection of research personnel, and facilities for initial work that would be entirely too costly for the company just entering upon an excursion into research. As the first few years pass by, management has an opportunity from first hand contacts with the institute to observe research methods and to develop a point of view helpful to the later establishment of a research department of its own. Meanwhile, in the institute the sponsor enjoys the same privileges of proprietorship that would prevail if the work were done under his own roof in the beginning. Under the usual contractual arrangements any inventions or discoveries made in the institute within the field of the sponsor's interest become the sole property of the sponsor. There are a number of outstandingly successful non-profit research institutes prepared to render this service provided a prior commitment in the field of the sponsor's interest has not already been made. The three largest are Mellon Institute at Pittsburgh, Battelle Memorial Institute at Columbus, and Armour Research Foundation at Chicago. All are endowed, splendidly equipped and well managed. More recently groups of enterprising business men in the South and Midwest have seen fit to take the initiative in organizing the Southern Research Institute at Birmingham, Alabama, and the Midwest Research Institute at Kansas City. Both organizations are non-profit and both are dedicated to the services of their respective regions. Great promise is held for institutions of this kind which can work close to the regional interests of their sponsors. Some trade associations have established special laboratories such as the Institute of Paper Chemistry at Appleton, Wisconsin and the Institute of Textile Technology at Charlottesville, Virginia.

During the course of an address recently presented as part of the "Conference on Research and Regional Welfare" at the University of North Carolina, Dr. Wilbur A. Lazier, Director of the Southern Research Institute at Birmingham, among many other interesting things stated the hopes and plans of the Southern Research Institute in its work to stimulate and aid the entire Southern economy in such an interesting manner that we have persuaded Dr. Lazier to edit his remarks and give us the privilege of printing them for our readers.

We are indebted to Dr. Lazier for this article which we unhesitatingly recommend as enjoyable and worthwhile reading.

—Editor.

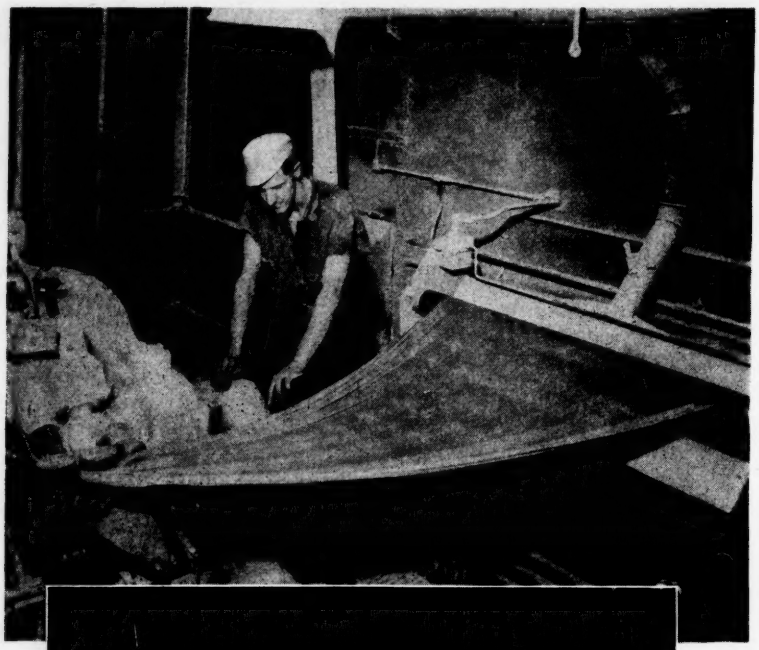
In industrial research the all important factor in success is the competence of the research personnel employed. After this there is required on the part of sponsors something of an appreciation of the difficulties and expense involved in conducting research for profit. It is not only unfair but unenlightened to expect a research chemist or physicist to solve all your problems the first day or even the first year. Companies experienced in research know that much patience, time and money are needed to bring satisfactory results.

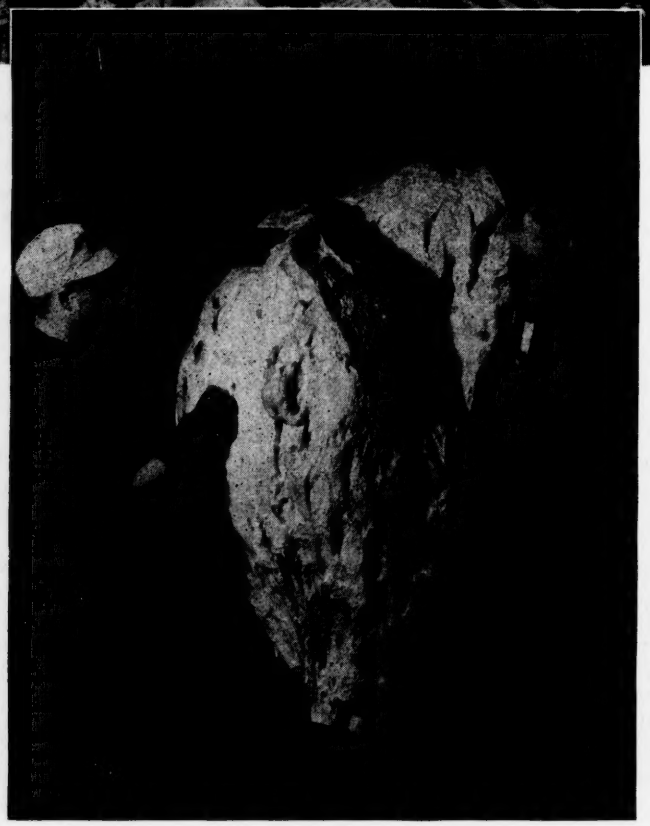
Those who have given thought to planning our postwar recovery program are concerned about the prevailing apathy towards the deferment of technological and research personnel, and the training of youth for a career in science. It takes at least seven years of academic training or four years of intensive schooling with added years of practical experience to make a research man. The fountain-head of research is the undergraduate enrollment in technical studies, and this has been cut to a trickle. Here in the South there is a special problem, because too little attention has been given to the science branches of our colleges and universities, relatively few of which are qualified to grant the doctor's degree in the physical sciences.

The American Association for the Advancement of Science makes a practice of honoring scientists who in the opinion of their fellows have achieved most in their chosen fields of endeavor. Few are the awards which go to the South. In the 1944 edition of *American Men of Science* there were 255 scientists who were awarded the star of distinction. Out of this number only eight went to the South. It is interesting to note that among these eight, three were distinguished members of the faculty of the University of North Carolina. In the whole 1944 class of

(*Continued on page 72*)

Synthetic Rubber Plants Expected to Stay South





THE rubber industry has moved South for the duration.

Manufacturers who were leaders in the rubber industry prior to the war and who have also been identified with the synthetic industry say the synthetic industry is here to stay, and that the war-built plants will continue to be used. This is an examination of the factors involved to determine the grounds, if any, for these encouraging promises.

The statement that two or more years will be required after the war to restore normal peacetime stocks of rubber products can hardly be doubted by a public keenly aware of present shortages. For the long-term view of the industry there are other important considerations pointing to the probability that both natural rubber and synthetic rubber—all that possibly can be produced of each—will be needed to meet postwar demands.

Natural rubber, when it comes back, will not be obliged to replace synthetic rubber in order to make a market for itself. Just prior to hostilities it had discovered for itself a vast new field which is still awaiting its return. This new, and as yet unsatisfied field is the potential market for products of foamed latex, or "airfoam" rubber. Manufacturers who had started making mattresses, cushions, upholsterings of foamed latex have maintained their advertising campaigns, promising products of unprecedented household comfort after the war.

Thus, while natural rubber will not need to demand its place back to the exclusion of synthetics, it could not, if it would. Synthetic rubber has proved itself superior for many uses. In wartime it has been discovered that koroseal, for example, is lighter in weight and safer from fire hazards as a protective coating for the network of cables in fighter craft than was the former coating of asphalt. Such discovery has already led to plans for the peacetime utilization of this synthetic in numerous ways, including transparent film-coating for wallpapers to

Left—Top—Film of neoprene as it leaves the drier, is twisted into the form of rope and cut into short lengths.

Lower — Neoprene being poured from the polymerization kettles, one step in the processing of synthetic rubber.

make them fire-resistant and washable.

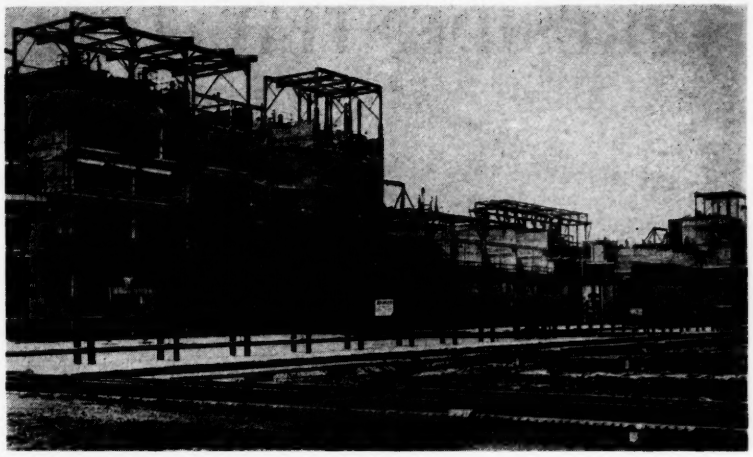
Fighter planes equipped with carburetor diaphragms of synthetic rubber have been made capable of constant performance at heights, and under temperature extremes where carburetors previously refused to operate. Natural rubber for hose used in the transmission of certain chemicals, oil, and gasoline is a thing of the past. These chemicals which penetrate, swell, and quickly disintegrate natural rubber have no effect on hose made of keroseal.

Expansion Unlimited

The foregoing are but a few examples taken from operations that are yet too close to us for comprehensive analysis, and as yet partially concealed in the secret formulas of war. Other developments are ahead. Waldo L. Semon, the chief research chemist of the B. F. Goodrich Company, who developed keroseal and who devoted six laborious months to the solution of the synthetic formulas developed in Germany and other European countries in the past generation, is yet only 46 years of age. Since Semon's developments were adopted by the War Department and pooled among the various manufacturers as standard for tires and other rubber products of war industries, Semon has gone right along with his experiments and developments which may at any time show themselves in the increased effectiveness of implements of war, and will certainly yield items of peacetime rubber not yet listed. Dr. E. R. Gilliland, former assistant Rubber Director, recently predicted postwar polymers the equal of natural rubber will be produced profitably at 15 cents per pound.

Once we have recovered the Eastern natural rubber fields, estimated to have a potential production of 1,700,000 tons a year and added it to the world's present production of 1,000,000 tons of synthetics per year we shall have a 2,700,000 ton reser-

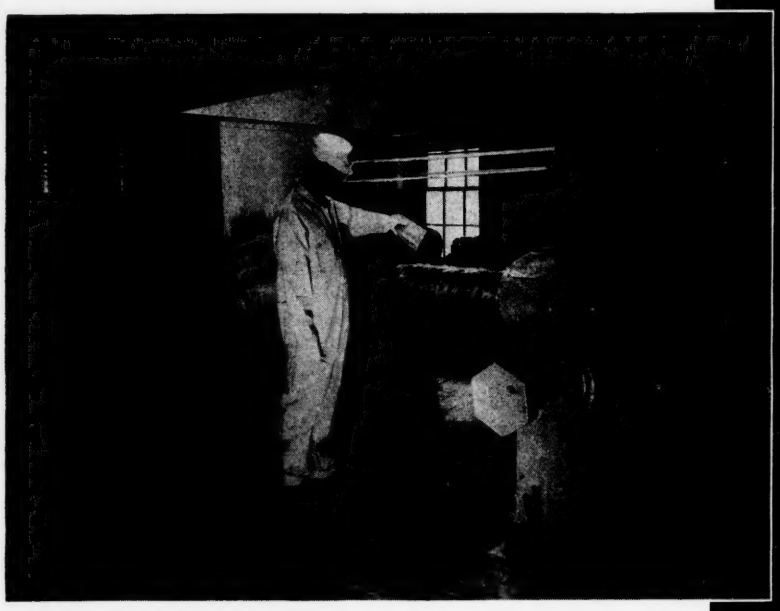
(*Continued on page* 70)

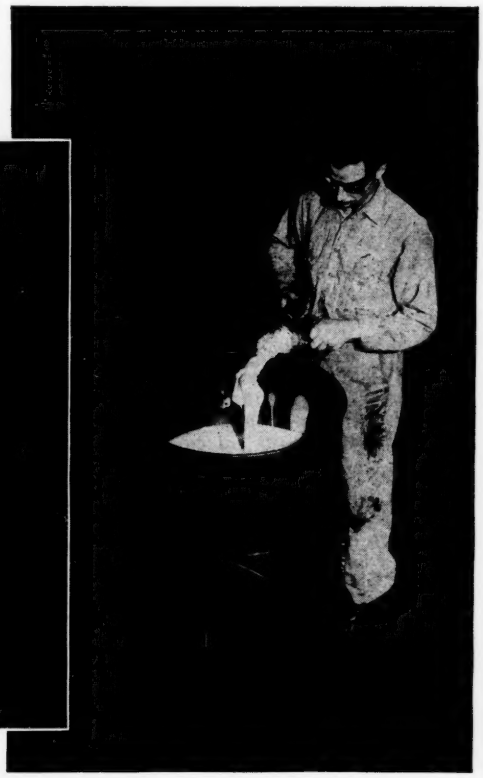


Above—Monovinyl unit of the Louisville neoprene plant is composed of open end cells, with explosion-proof walls. Operators control room is on the opposite side of the building. Reinforced concrete walls separate it from the cells.

Right—Neoprene latex flowing into shipping drum.

Below—Compounding neoprene ingredients.





PRESIDENTIAL TENURE

"Your President may easily become king."

Patrick Henry

THE present is an opportune time for the Congress and people of the United States to consider a Constitutional amendment limiting Presidential tenure of office. It will be a matter of years before particular political ambitions, of either a personal or party nature, will be at stake and the principle involved may be reviewed in a cool and impartial manner.

Precedent against more than two terms for one man was created by the refusal of the first President of the United States to run for a third term. Through similar action on the part of his successors the precedent grew strong enough to become a tradition which existed unbroken for a century and a half.

The motives that actuated this attitude of the early Presidents are best understood from a review of the deliberations of the Constitutional Convention that set up the provisions for the office of President. The question of tenure produced considerable controversy and a settlement was arrived at only after months of study and debate.

First proposals in the Convention ranged from a single term of seven years to a three-year term with unlimited re-eligibility. The former won on the first ballot test, but by so close a margin and against such strong opposition that the question was referred to a special committee for study. The decision, referred back to the Convention by this committee, called for a four-year term with no limit on re-eligibility, and the committee's recommendation was accepted.

The settlement was recognized as a compromise between those in the Convention who placed "guardianship against kingship" above all other considerations and those who were unwilling to limit the prerogative of the people in the choice of their executive.

Leading proponent of the single-term idea was Thomas Jefferson who predicted that failure to limit tenure of office would menace rather than protect the sovereign rights of the people in controlling their government. Said Jefferson, after the Convention had completed its work:

". . . There is another strong feature in the new Constitution which I strongly dislike. That is the perpetual re-eligibility of the President. Of this I expect no amendment at present . . . but it will be productive of cruel distress to our country . . ."

During the course of the nation's history, the controversy has flared anew at recurrent intervals. Congressional resolutions to limit re-eligibility were offered in 1828, 1829, 1830 and 1832. Constitutional amendments were proposed in 1835, 1844 and 1846. Single-term limitations were sponsored in political platforms of 1872, 1876 and 1894. A Congressional resolution played an important part in denying a third term to Grant after a four-year interval following the two terms he had already served.

Theodore Roosevelt's attempt to regain the Presidency after having served two terms resulted in the offering of a Congressional resolution which proposed: ". . . The term of President shall be six years and no person who has held the office by election or discharged its powers or duties, or acted as President under the Constitution and laws made in pursuance thereof shall be eligible to hold again the office by re-election."

More recent suggestions to limit tenure or re-eligibility were made during Wilson's administration and after Harding's death when belief gained ground that long Presidential tenure constituted too great a strain on incumbents.

That no definite results came from any of these efforts has prompted the suggestion that the virility of the tradition itself presented the greatest obstacle to obtaining bolstering measures. It had become practically an unwritten law. From all appearance and experience it seemed to need no bolstering. Definite and determined attempts had been made by Grant and Theodore Roosevelt to breach its bulwarks. They had failed in their purpose. The star of the tradition was in its ascendency right up to the time it met with collapse.

George Washington while shying from commitment to term limitations, set the precedent in motion when he refused to serve more than two terms. The anchor was sunk deeper by other patriots who followed him in the Nation's highest position of power. It remained for a contingency, unforeseen by the early framer's of the Nation's policies, to gnaw away the substance in which the tenure tradition was anchored.

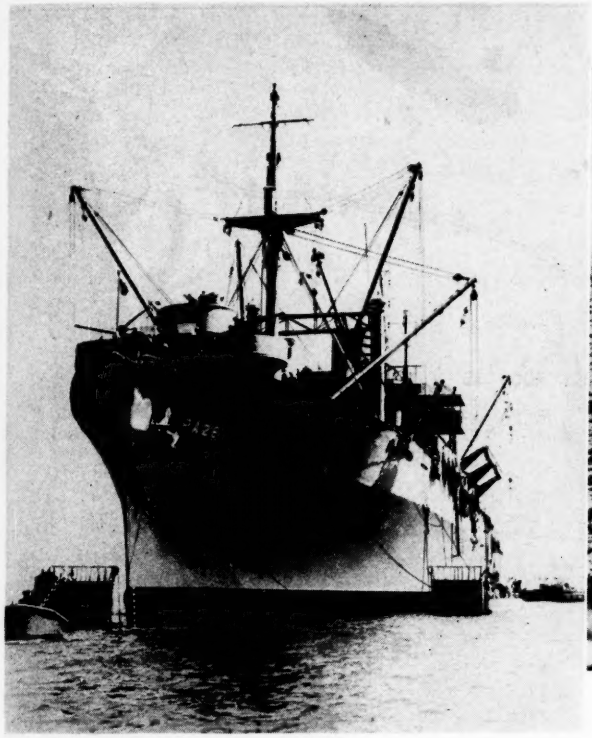
The early fathers did not foresee that a party system with its patronage and spoils was destined to rise and transcend patriotism itself in the motivation of political ambitions. The most sinister feature of the spoils system was that its full force evolved slowly. It crept upon the Nation almost unrecognized for what it was. Its deadliness had not yet become apparent as late as the time of Lincoln who said: "By the frame of Government under which we live, this same people have wisely given their public servants but little power for mischief, and with equal wisdom provided for the return of that little to their own hands at short intervals."

It had not then been made obvious how the "little power" granted by the people could be expanded by detour through public corporations and widespread agencies into a blanket of party-controlled power that could spread over homes,

(*Continued on page* 75)

by

Caldwell Walker



Left—The U. S. S. Samuel Chase, an Ingalls veteran of five major invasions.

Above—H. M. S. Battler, an escort carrier built at Pascagoula for the British.

COMPANY PIONEERED ALL-WELDED VESSELS—

PEACETIME PROGRAM NOW BEING PLANNED

Over Seventy Ships Mark Ingalls War Record

THE Ingalls Shipbuilding Corporation, which recently added its seventieth ship to the war fleet has marked the fifth anniversary of its first launching ceremony at its Pascagoula, Miss., shipyard, largest single industrial installation in the state.

Only sixty months ago—June 8, 1940—the Exchequer, first 18,000-ton all-welded ship built at the first shipyard in the United States designed and constructed for the exclusive use of the 100% welded method of building ocean-going passenger-cargo ships slid down the ways.

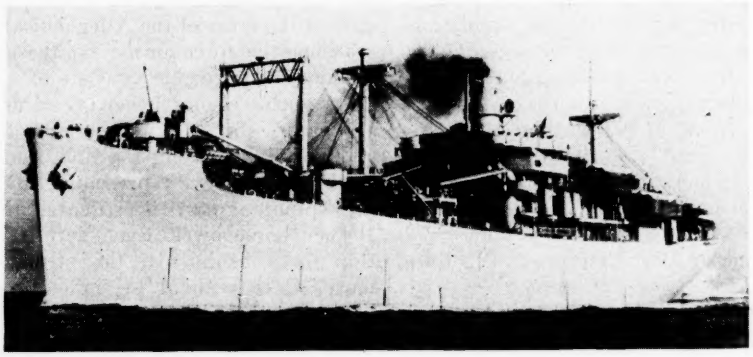
Recently, No. 70, The SS Sea Scorpion, a war cargo vessel, was launched at a brief wartime ceremony by Miss Mary Guest, daughter of Ingalls Executive Vice President W. R. Guest and Mrs. Guest.

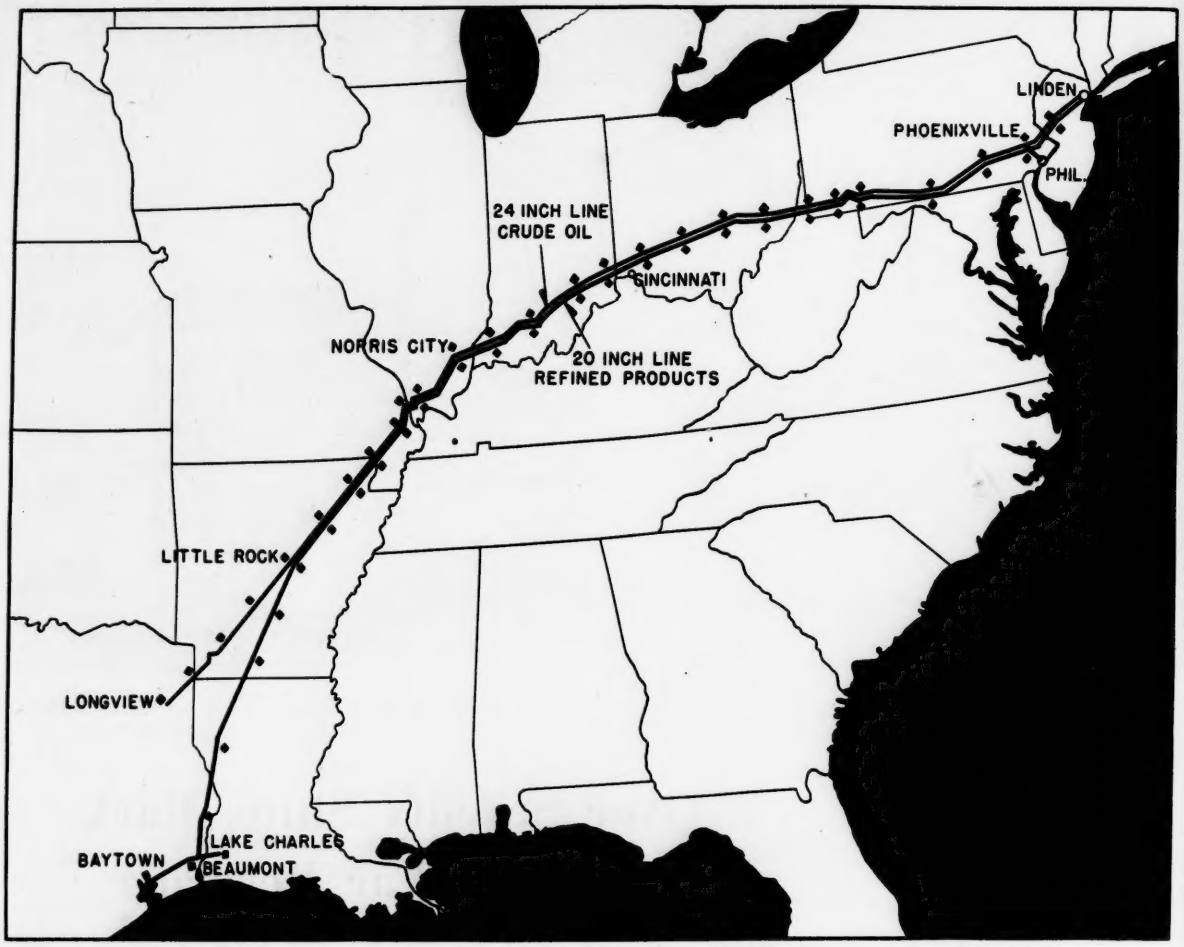
A source of pride is the USS Samuel Chase, an attack transport which went through all five European and Mediterranean invasions. She became known as the "Lucky Chase" as she dodged torpedoes and endured bombing and strafing attacks off North Africa, Sicily, Italy, Normandy and Southern France. Few of her gallant Coast Guard crew were killed or injured as she poured men and guns onto hard-won beachheads, then stood by to evacuate the wounded.

The HMS Battler, HMS Pursuer, HMS Hunter and HMS Chaser, all aircraft carriers built at Pascagoula

(*Continued on page* 81)

Below—The latest type of attack transport, embraces the experience and knowledge gained in earlier amphibious attacks. This ship is the U. S. S. Hampton.





Route of the two "Inch" pipelines—one for crude oil, the other for refined products.

The Two "Inches"—Big and Little

THE Big Inch and the little Big Inch pipelines, reaching from the Southwest to the East, have been described as "the double-barrelled weapon that conquered Germany." Both these lines appear destined for great peacetime usefulness.

One barrel of this rifle which was pointed straight at the heart of Germany is two feet in diameter and 1,400 miles long. The Big Inch pipe line shoots a stream of 320,000 barrels of crude oil per day from the petroleum fields of the Southwest to the refineries of the Eastern Seaboard. The second gun barrel, 20 inches in diameter and known as the little Big Inch, spews 225,000 barrels of gasoline per day from the refineries of the Gulf coast to New York harbor, a distance of 1,600 miles.

In support of the characterization of the Big Inch and the little Big Inch as a double-barrelled weapon of war it has been pointed out that the gasoline requirements of this war were 80 times those of the first world war, that the United States armed forces alone used 12 million barrels of high octane gasoline per month, that in a single 4-hour mission by 1,000 flying fortresses 25,000 barrels of aviation gasoline were consumed, which is equivalent to a trainload of 100 tank cars. Think of one such train heading eastward every hour on the hour day and night for the past year, and you have an idea of the magnitude of the war job done by War Emergency Pipelines, Inc.

The 24-inch underground conduit known as Big Inch begins at Longview, Texas and reaches to Phoenixville, Pa., where it forks into two 20-inch lines, one extending 40 miles to Philadelphia, and the other 90 miles to New York. From an elevation of 300 feet at Longview, and through a wide variety of terrain, this line reaches a height of 2,900 feet at Laurel Hill, Pa., where it crosses the crest of the Alleghenies.

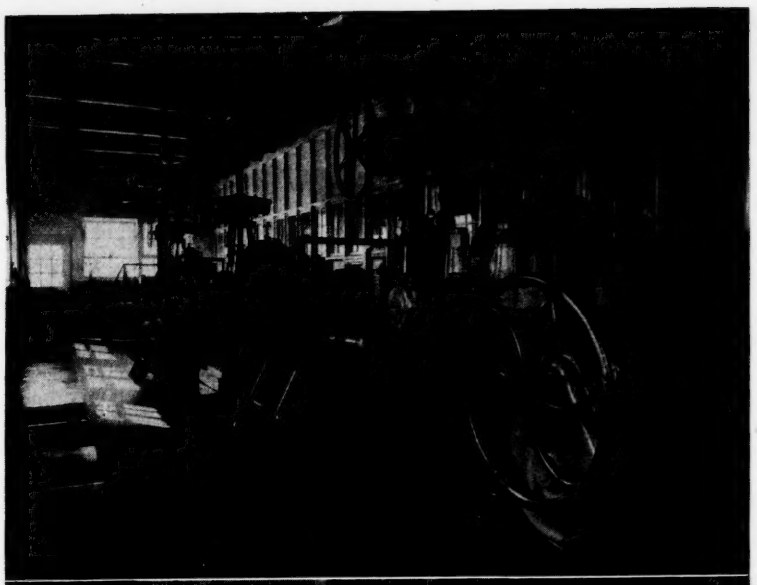
The motive force for moving these streams of petroleum consists of a series of electrically driven centrifugal pumps, stationed at intervals of about 52 miles along the line. The combined energy represented by these pumping units is estimated at 100,000 horsepower. Even with all this force behind it, the stream moves at only about 4¼ miles per hour; but the output is continuous.

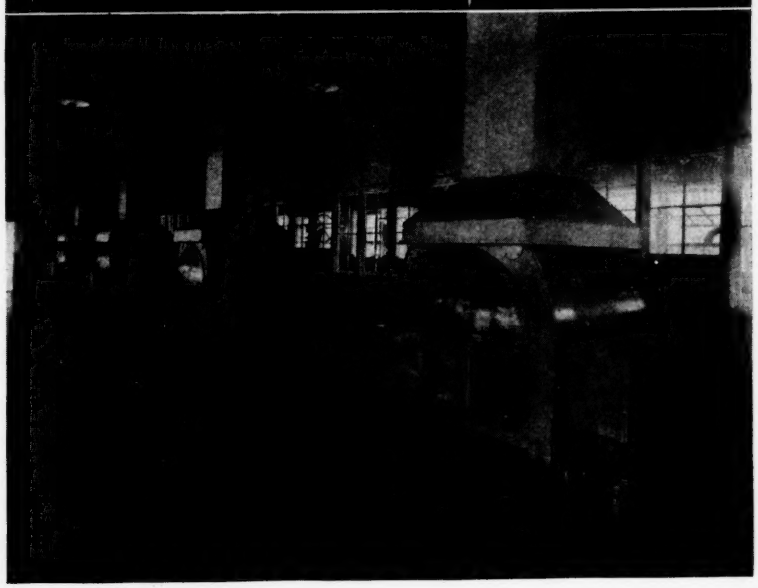
Naturally the question arises:

Right—top—Pump room of a typical "Big Inch" station.

Right—middle—Station chief and operator at control desk in a station on the 20-inch line.

Right—bottom—Westinghouse motors of 1250 horsepower in a four unit station.





How can all this capacity for delivering petroleum to the East be utilized after the war, since it was not required prior to the war? No official answer is available, but contemplation of the enormity of shipping losses, including coastwise tankers, and the heavy demands to be made on shipping for the next several years in the transportation of other commodities, makes it apparent that both lines will be called upon for their capacity share in supplying the peacetime needs of the heavily populated East for petroleum in its many forms.

Already there is official announcement to the effect that the Eastern states face another fuel shortage this winter, and that the Little Inch pipeline was closed immediately after cessation of hostilities in Europe because it was necessary to divert its load to the Pacific coast in the war against Japan.

All this seems to add up to the fact that these pipeline facilities will be required to furnish a normal peacetime supply of petroleum products to the East.

Coastwise ocean tankers as well as railway tank cars represent transportation facilities that will be needed for other purposes in the era of reconversion. Their mere replacement by the Big Inches obviates the necessity of determining the future usefulness of these pipelines on the basis of war demands.

The accompanying illustrations of intermediate stations along the route will raise the same question often asked before: "Why not have one big pump at the beginning of the line force the liquid all the way through?"

The answer is that the drag created by the walls of the pipe upon the stream of liquid is so great, and increases at a constant rate, a pump of sufficient power to force the stream all the way would require piping of tremendous thickness for at least the first half of the distance.

The many pumps along the route act in unison.

Cattle Feed Made from Florida Citrus Pulp

John M. Kuder

THE birth of a new and one of the most important industries of the South was brought about by a country boy who was born in Ohio, raised on a stock farm, and graduated at Michigan Agricultural College where he majored in feeds, feedings, and chemistry. He served his country in the first World War at the front with arms and ammunition. He is now serving his country in the second World War by supplying feed for thousands of cattle from what was formerly a waste product. His name is John M. Kuder.

After graduating from the Michigan Agricultural College, he started out in life mixing fresh poultry feeds and serving the large poultry farms in California. One day, while covering his farm customers he noticed a large pile of some yellow substance, a short distance from the road, which was surrounded by a bunch of cows who seemed to be enjoying it even though all around this pile of refuse there was a lucious growth of nice green alfalfa and other grasses. Being interested in feeds and the feeding of live stock, his curiosity was aroused to such an extent that he stopped his truck and investigated the pile of golden refuse which the cows seemed to be enjoying. To his surprise, he found it to be orange peelings dumped there by the canners who had extracted the juice therefrom for human consumption. Immediately, the idea occurred to him that if this refuse really had feed value and could be dehydrated and shipped over the country, it would serve a great need for feed during times and places where such feeds as it would replace were scarce.

After having this refuse analyzed, he found it to be a very fine carbohydrate feed, reasonably high in protein, fat, nitrogen-free extract, and low in fibre. "Nothing to it," he said. "That golden pile of refuse is a real pile of gold. Just dry it, put it in the bag, and hand it to the dairyman for his cows. It would save the canners a lot of money which they now spend hauling it into the country, it would eliminate a tremendous health hazard as it rapidly decays and forms a natural breeding place for flies and other insects, and the farmers would buy it on sight. Why not, a fine carbohydrate feed, highly palatable, full of minerals, and easy to feed," he said. This young man was full of ideas and ambitions. He contacted some of the canning plants who were dumping this refuse and found that they had been carrying on some experiments in trying to dehydrate it but owing to its natural composition, containing about 80% moisture and other elements, most of which had to be evaporated, they had not been able to do anything in a commercial way.

Even though his findings here were not at all encouraging young John Kuder continued to experiment with various methods of dehydration which he thought would be practical for such a product. He finally found a way to economically dehydrate the peel, seed, and rag, which is the refuse from the citrus canning industry, without destroying the feeding value or the mineral content of the raw material. After several years of experimenting with and developing more economical methods of dehydration, along with conducting feeding tests on various farms and proving to himself, without a question of a doubt, its definite feeding value, he moved to Florida in 1936 and started the Kuder Citrus Pulp Plant at Lake Alfred.

The first year he manufactured only approximately 2,600 tons of dry feed which was looked upon with a great deal of skepticism by the dairy farmers to whom it was offered. In some instances it was necessary for him to furnish the feed without cost and guarantee no ill effects to the dairymen's cows in order to get them to try it.

He had, however, convinced himself of the merits of this new cattle feed and with confidence and persistence was able to prove conclusively to the dairyman and cattleman that here was a product of the rich citrus groves of their own state that could easily and successfully replace feeds that had, of necessity, been imported from foreign countries and shipped in from distant points in this country. As the successful use of citrus pulp was repeatedly demonstrated by dairymen themselves, the story of its high value and economy spread until in nine short years one of the major feed industries of the South has developed.

Running parallel to this rapid growth of the citrus feed industry there have been tremendous improvements in citrus cultural practices such as improved methods of fertilization and the application of nutritional sprays which have added to the mineral content of the fruit.

It is a well known fact that most southern and particularly Florida soils are seriously deficient in many minerals so vital to successful growth and production. During recent years the progressive growers of the state have recognized the necessity of correcting these natural deficiences by applying to their groves such minerals as calcium, copper, phosphorous, iron, magnesium, manganese, potassium, sulphur, and zinc.

To a greater or less extent all of these minerals are required by the animal for healthy growth and production. There is deposited in the fruit quantities of these minerals which give added value and help to supply a natural combination of

(*Continued on page* 78)

Turkish Tobacco Grown in South Seen in Successful American Culture

by

Bill Sharpe

SUCCESSFUL culture of high quality Turkish tobacco in this country, a feat hitherto considered impossible, has been announced simultaneously at Duke University and at agricultural experiment stations in North Carolina, Virginia and South Carolina.

Import of Turkish tobacco by cigarette manufacturers for blending with domestic tobaccos amounts to 50 to 75 million pounds a year. Manufacturers attribute the quadrupling of cigarette smoking in the United States during the past 25 years largely to the skillful blending of Turkish with domestic tobaccos.

The diminutive aromatic leaf is being grown this summer under the supervision of Duke and state experiment station researchers on some 55 small farms in three states. If the raising of Turkish in this region can now be proved economically feasible, it may prove a boon to thousands of small growers in the Piedmont and mountain areas of the South, and mark one of the most important developments in tobacco growing since the bright domestic and burley tobaccos were developed nearly a century ago.

Strangely enough, the Turkish plant thrives and produces best quality on comparatively poor soil and fortunately does not overlap areas of domestic leaf.

A principal consideration in the growth and curing of Turkish tobacco is the large amount of hand labor involved, since the more numerous leaves are but a tenth the size of domestic tobacco leaves and require considerable handling. Continuation of the research program this summer in subsequent seasons will include attempts to solve the labor-cost problem. Turkish brings a substantially higher price per pound than does domestic leaf, and once the operation is under way, an income of $600 an acre is considered probable.

Duke's announcement is the culmination of an intensive program of research of over five years. For decades it had been contended that Turkish would thrive only in certain areas bordering the Mediterranean and Black Seas, and numerous attempts to produce it successfully in other areas have failed. Now Duke claims American Turkish is as good if not better than the overseas tobacco.

Credit for the successful experiments goes to a small group of Duke and agricultural scientists of the three states, who have been supported in their work by Duke University, the General Education Board, the Agricultural agencies of the three states and four of the major tobacco companies.

Dr. F. R. Darkis of the Duke Department of Chemistry has been in charge of the Turkish tobacco experimental laboratory and field research, a task which involved the responsibility of coordinating the project between the participating agencies and individuals. Dr. F. A. Wolf of the Duke Department of Botany has been in charge of the breeding and genetic experiments. The program as a whole has been under the general direction of Dr. Paul Gross, chairman of the Department of Chemistry.

One interesting revelation of this cooperative research program has been the demonstration that it is not necessary to import fresh seed from the European growing regions each year. It had previously been thought that seed grown in the United States would not continue to produce plants which are true to type.

Turkish tobaccos are grown under greatly different conditions from those of the familiar flue-cured tobacco of the Southeastern region. The plants are planted very close together (from 5 to 6 inches apart) and in rows 20 inches apart. Under these crowded conditions the stalks produce a large number of small leaves. There are 55 to 60 thousand Turkish plants per acre as compared to 5 to 6 thousand domestic plants per acre.

While this process increases the labor of planting, there is compensation in the fact that the crop while growing needs very little weeding or cultivation.

Production in small plots of one to two acres or less has been found most desirable. Many small farms in the upper Piedmont regions of the Eastern slope of the Blue Ridge from Virginia to South Carolina are considered to be the most favorable sites for growing this type of tobacco.

For the past 20 years these small farms more and more have become marginal. An increasing preference by American smokers for lighter

Bill Sharpe

eastern flue-cured types of tobacco has reduced the demands for the heavier types formerly grown on the farms of the western Piedmont in Virginia so that a new cash crop is needed as a source of income in this area. Due to his higher production costs, the same situation prevails for the small cotton farmer in western South Carolina.

Another factor of economic significance is that these tobaccos

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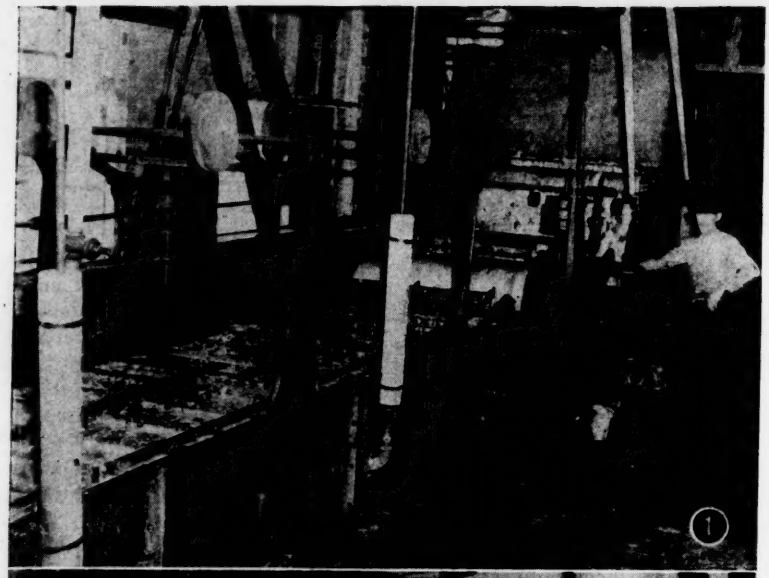

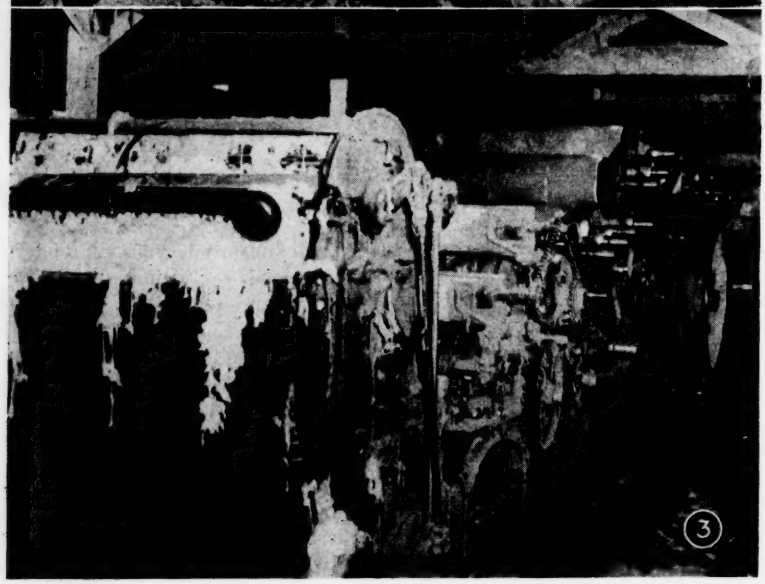

Texas Wo
First in

THE tendency of manufacturing concerns to locate in the area of raw materials is demonstrated in a unique Texas industry, that of wool manufacturing. Ranking first as a wool growing state, producing a fifth of the nation's supply of virgin wool, and leading the world in the production of mohair, the fleece of the angora goat, Texas has the first wool tops plant south of the Mason-Dixon line.

This wool tops plant is located at New Braunfels, and owned by Robert E. Pent formerly of Philadelphia. Mr. Pent built the first unit of this plant in 1941.

One other product besides a variety of wools is significant to the success of the New Branufels plant, and to the future expansion of the wool manufacturing industry in the Southwest. Natural gas has proved itself the fuel par excellent in this type of industry.

Wool top is a continuous untwisted strand of the longer fiber from which the shorter wool fiber, or noil, has been removed by combing. It is the standard commercial form in which wool is purchased by spinners. Some spinners demand tops of a specified blend of different wools; other spinners purchase their tops on the open market, but in either case the form is the same, a large soft ball of unspun strands of wool. Tops, as traded on the New York Cotton Exchange, are subject to certain specifications, rules, and by-laws as established in wool top exchange standards.

Fleeces from the sheep-shearers arrive at the New Braunfels plant in their natural state as to grease and dirt. This natural wool is first

Left—(1)—Scouring bowls are usually in sets of three to five, each with an automatic feed from one bowl to the next. The final bowl in a scouring set is shown. (2)—The dried wool is discharged into a storage bin by means of a blower. (3)—The carder, which is equipped with an automatic feeder and weigher. (Courtesy United Gas Log)

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Tops Plant
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sorted, graded, and prepared for the "opener." The opener consists of two revolving spindles studded with spikes, or pins, and revolving at 440 r.p.m. The wool thus opened is blown into a state of fluffiness, ready for the next operation, known as scouring.

Among the several successful methods of scouring, the emulsion system is used at the Pent plant. It consists of a series of scouring bowls containing an emulsion of hot water, soap, and alkali and equipped with agitators in the form of squeeze rollers and oscillating forks. The mixture is kept at the proper temperature by means of steam pipes from boilers heated by gas jets which must be kept delicately adjusted at all times.

The wool is fed automatically from one to another of the scouring bowls, which usually stand in a series of five. Upon leaving the last scouring bowl the wool enters the dryer, having the appearance of a large rectangular oven heated by steam coils. After the wool has attained the required degree of dryness it is blown into a storage bin.

From the storage bin the wool is fed into the first unit of the carding machine, which is an automatic feeder and weighing mechanism designed to feed exactly the proper amount of wool into the carding machine at one take. A lattice-like apron lifts each weighed batch of wool to the feed rollers.

The feed rollers vary in size from 16 to 24 inches, depending upon the quality of the wool, whether short

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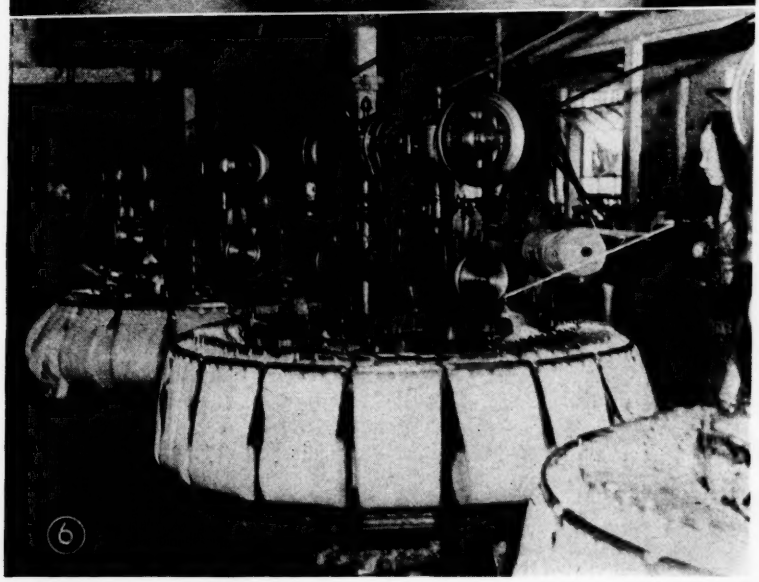
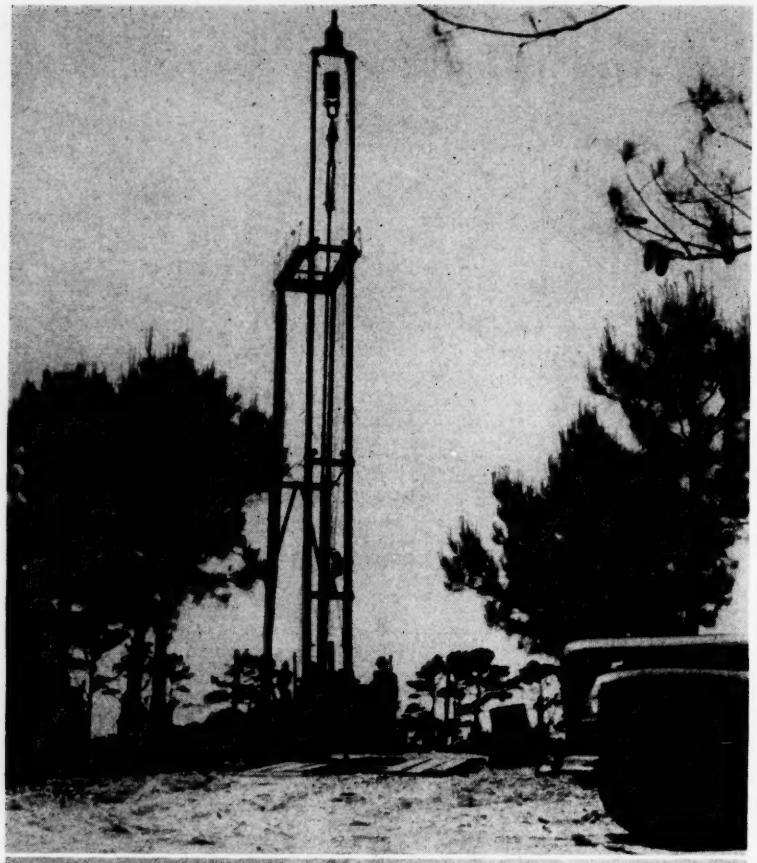
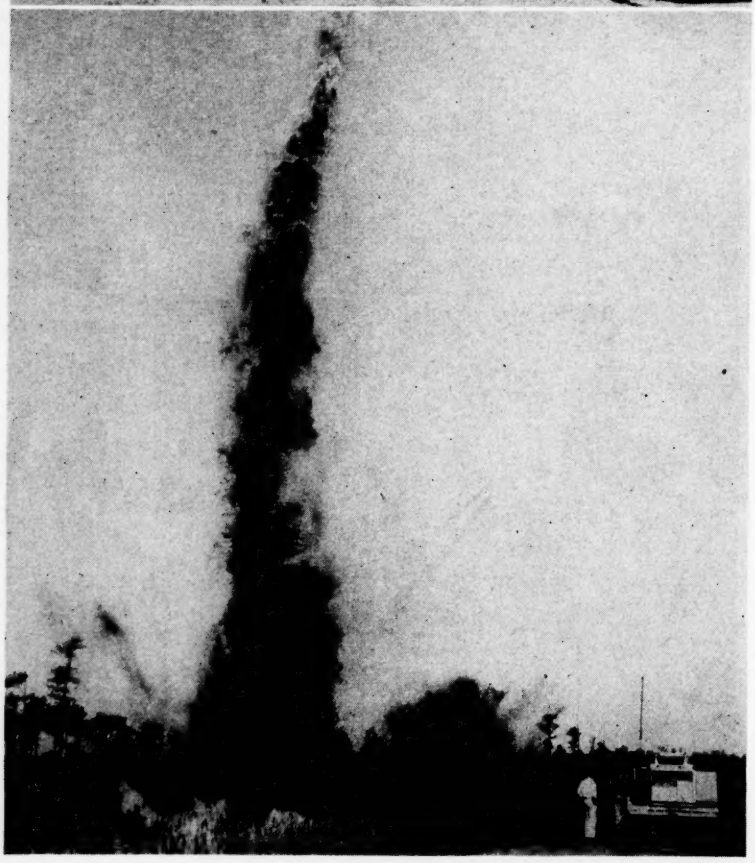


Right — (4)—Carded, combed and reduced to an endless sliver, the wool is wound into ball form. (5) — Gill boxes further straighten the fibres and re-wind them into balls after which they are ready for the punch ball machine. (6)—Line of four combing machines, from which the wool is drawn off completely combed with only the noil to be disposed of. The combed fibres are wound into standard weight balls. (Courtesy United Gas Log)





Oil Companies Prospect North Carolina

MAN-MADE earthquakes being produced along the North Carolina coast by seismographic tests may not blast out any oil, but threaten the plan for a great national park. Most of the local landowners, and a lot of other people, are hopeful that the current coastal oil hunt will yield oil. But skeptics point to the fact that acquisition of land for the projected Cape Hatteras National Seashore has been halted, that the deadline for turning the requisite property over to the Park Service is rapidly approaching.

Consequently, Congressman Herbert Bonner, representing this district, is drawing up a bill to give the Seashore plan ten years of grace. North Carolina had been given until 1947 to hand over 62,000 acres of land for establishment of the nation's first great seashore. Then came the leasing of land on the central coast to a group of capitalists who now are drilling a well near Morehead City. This activity was quickly followed by entry of other prospectors and by extensive exploratory work along most of the coast, especially in the area of the proposed park.

Taking cognizance of the situation, the 1945 General Assembly passed a law prohibiting further acquisitions for the project for two years. This automatically spells the end of the project, unless Bonner's plea for clemency is granted. Already some 12,000 acres are available, including some of the chief points of interest in the park area. These include the site of Fort Raleigh, the Kitty Hawk memorial and acreage, and old Cape Hatteras light. Goal of the NPS is 100,000 acres, to include most of the seashore of the outer banks through Ocracoke Island. Park men have said they expect the unique park to be America's most popular.

Meantime, Standard Oil, Sinclair and Texas have put under lease

(*Continued on page* 74)

Texas Plant to Boost Nylon Output

Natural gas, petroleum forecast as additions to present coal, air and water components of nylon.

THAT popular description of nylon's ingredients—coal, air and water—will have to be modified when nylon intermediates made in Texas come into the picture. For natural gas, and petroleum, it is believed, will one day be used at the new $20,000,000 nylon salt plant being constructed by the Du Pont Company, near Orange, Texas.

Nylon salt has nothing to do with ordinary table salt except that both are white and both belong to a very broad class of chemical compounds and a base. Whereas table salt is a simple compound which can be prepared from sodium hydroxide and hydrochloric acid, nylon salt is made from two very complex chemicals known as adipic acid and hexamethylene diamine. The job of the Texas plant will be to produce both of these compounds and then to combine them to form the salt, which will then be shipped to other plants to be converted into yarn, bristles, plastic articles, etc. Currently all the nylon salt is being made at the Du Pont plant at Belle, W. Va.

Hydrogen is needed in the manufacture of both adipic acid and hexamethylene diamine; and natural gas, or methane, is a good source of this element. Methane consists of one atom of carbon and four atoms of hydrogen. The hydrogen will be separated from the carbon at the nylon plant by one or more methods. Natural gas also will be used as a fuel for some of the manufacturing processes.

In making the adipic acid, cyclohexane is used, which is at present made from a coal tar product, benzene, by the addition of six atoms of hydrogen to the benzene molecule. This is one point at which the hydrogen from natural gas will be used in the Texas operations. However, cyclohexane is a naturally occurring component of petroleum, and it is hoped that eventually it will be possible to obtain it directly from this source. It constitutes from less than one to more than four per cent of the lighter distillate, the so-called naphtha fraction, depending on the source of the crude petroleum, but it must be separated out in relatively pure form for adipic acid manufacture.

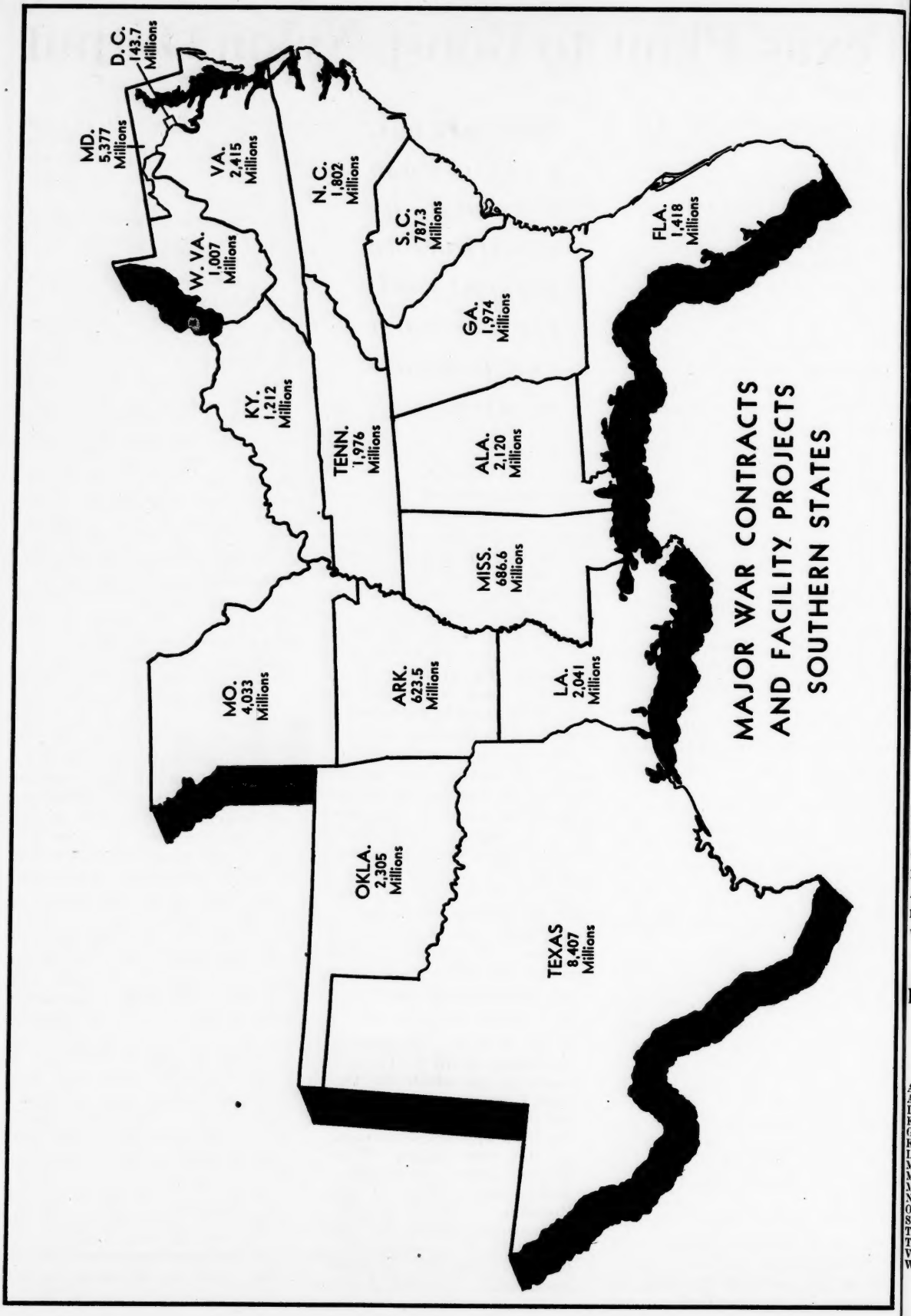
Once the adipic acid is manufactured, part of it is used in making the other half of the nylon salt combination, hexamethylene diamine. Here ammonia is required, and more hydrogen from natural gas. The ammonia itself is made from nitrogen fixation process, and it will not be made at the Texas nylon plant. The hydrogen for ammonia synthesis may come from either natural gas or water, and the nitrogen from the air.

After the adipic acid and hexamethylene diamine are produced they are run together, in measured amounts, in stainless steel equipment. A reaction takes place in which the ends of the dibasic acid molecule hook onto the ends of the diamine molecule to form hexamethylene-diammonium-adipate. In simple terms, this is nylon salt. In dry form it is a white crystalline material that looks much like ordinary table salt. To facilitate its handling it is dissolved and transported by tank car to the nylon flake and yarn plants at Seaford, Delaware, and Martinsville, Virginia. A third nylon plant at Chattanooga, Tennessee, is contemplated to increase further production of these products.

At the Seaford and Martinsville plants the nylon salt is piped to the top of the building to evaporators, where much of the solvent is removed to form a more concentrated solution. The salt solution now flows into an autoclave, a giant pressure cooker, where under the influence of heat the salt polymerizes, that is the small molecules link up to form long chain-like giant molecules. When polymerization has been completed the thick syrupy material is allowed to flow from a slot in the bottom of the autoclave on to the surface of a broad slowly revolving casting wheel. A shower of water hardens the nylon polymer into a translucent milky white ribbon, which is then chopped up into small flakes. The nylon flake from several autoclaves is blended, and, if yarn is to be made, it is poured into spinning machines. A hot grid at the bottom of the machine melts the flake and a carefully designed pump forces the viscous molten nylon through the fine holes of the spinneret to form the yarn filaments. The yarn is later stretched or drawn to increase its strength.

The Texas plant, to be known as the Sabine River Works of the Du Pont Company, is being built to boost the production of nylon for military purposes. All nylon has been under government allocation since shortly after Pearl Harbor, and the range of its usefulness has increased steadily. In addition to parachutes, glider tow ropes and airplane tire cords, the tough, resilient mildew - resistant material is used in flak-vests, life jackets, anti-black-out suits for fliers, lightweight flying suits, ponchos, tents, gloves, shoe laces, casualty blankets, and waterproof exposure suits. In bristle form it makes toothbrushes and paintbrushes. And in plastic form it is going into small molded parts for airplane instruments.

H. L. Wolcott, manager of the Morgantown, W. Va. ordnance works which the Du-Pont Company has operated for the Federal government, has been appointed manager of the new Sabine River Works under construction near Orange, Texas. W. H. Holstein, formerly production superintendent of the Belle, W. Va. works, has been appointed assistant manager.


MAJOR WAR CONTRACTS
AND FACILITY PROJECTS
SOUTHERN STATES
D.C.
143.7
Millions
MD.
5,377
Millions
VA.
2,415
Millions
W. VA.
1,007
Millions
N. C.
1,802
Millions
S. C.
787.3
Millions
FLA.
1,418
Millions
GA.
1,974
Millions
KY.
1,212
Millions
TENN.
1,976
Millions
ALA.
2,120
Millions
MISS.
686.6
Millions
MO.
4,033
Millions
ARK.
623.5
Millions
LA.
2,041
Millions
OKLA.
2,305
Millions
TEXAS
8,407
Millions

Southern War Supply, Facility Contracts Pass 38 Billion Mark

Industrial and military awards above 9.5 billion—

aircraft and ships total 14.9 billion dollars—

ordnance contracts valued over 5 billion

MAJOR war supply contracts and facility projects in the southern states have neared the $40 billion mark, according to latest figures available from the War Production Board. Supply contracts allocated to the South had reached the staggering total of $28,815,787,000 by May 1, while industrial and military facilities added up to $4,935,899,000. Add to this last figure $1 billion expended by private industries for new facilities and the South's industrial plant has increased in value nearly $6 billion since Pearl Harbor.

Miscellaneous production, which includes food processing, clothing and hundreds of other items, leads the contract parade with a total of nearly $9 billion, followed closely by aircraft at over $8 billion, with ship construction of over $6.5 billion holding third place, while ordnance—guns, tanks and ammunition—passed the $5 billion mark.

Maryland and Texas were practically tied for first place in aircraft manufacture, the Lone Star state having an edge of slightly more than $300 million. Three of the southern states did not participate in the production of planes, and only one had no part in the shipbuilding program. All of them had appreciable ordnance production and all shared well in the allocation of Federally financed industrial and military facilities.

Both industrial and military facilities will loom large in the postwar industry of the South. Countless war plants, shipyards, machinery and machine tools will be available for civilian manufacturing purposes. Many of the military installations, especially airfields will contribute to the industrial and transportation resources of the section.

Detailed breakdowns of war supply contracts and facilities are not available from the War Production Board, but the South's share of supply contracts was concentrated in the agricultural, forest and mineral resources of the section. Industrial facilities, shipyards, aircraft plants, ordnance factories and other operations were concentrated in the area because of the proximity of vast stores of raw materials and abundant power sources, coal and natural gas.

Cotton for clothing and high explosives, petroleum for fuel and the synthetic rubber program, southern bauxitie for aircraft construction, iron and coal in juxtaposition, unlimited timber, vast pine forests for pulp supplies, are but a few of the resources of the South which played major roles in the drama of the greatest war in history.

Another factor which has enabled the South to make great contributions to the war effort and build for the future has been the manpower supply, most of it native-born and free from the alien elements which have greatly contributed to labor unrest in other sections of the nation.

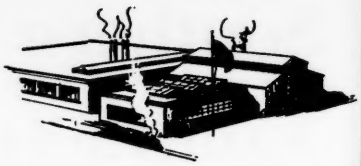
As the industrial machine of the South has expanded under the impetus of war, so have its research and technical programs, assuring a postwar future that will make of the southern states a number one industrial frontier.

Distribution of Major War Supply Contracts and Facility Projects, Cumulative by State and Major Object (Thousands of Dollars)

	Supply Contracts Through April, 1945					Facilities Through February, 1945			
	Aircraft*	Ships	Ordnance	Miscellaneous	Total	Industrial	Military	Total	Grand Total
Alabama	$76,683	$567,246	$506,053	$350,731	$1,500,713	$435,687	$183,391	$619,078	$2,119,791
Arkansas	.....	.....	132,438	51,785	184,223	327,714	111,572	439,286	623,509
Dist. of Col.	4,060	1,046	987	16,594	22,687	47,070	73,908	120,978	143,665
Florida	7,170	659,913	30,450	119,094	816,627	67,048	534,201	601,249	1,417,876
Georgia	439,105	395,227	199,569	549,691	1,583,592	107,771	282,875	390,646	1,974,238
Kentucky	355,645	3,010	178,409	205,247	742,311	302,461	167,275	469,736	1,212,047
Louisiana	245,260	533,548	210,743	424,826	1,414,377	373,494	253,289	626,783	2,041,160
Maryland	2,118,947	934,079	351,386	1,473,287	4,877,699	228,564	270,325	498,889	5,376,588
Mississippi	6,121	300,419	52,693	86,879	446,112	51,756	188,756	240,512	686,624
Missouri	965,024	157,544	1,543,824	683,884	3,350,276	538,642	143,624	682,266	4,032,542
North Carolina	62,914	456,495	138,030	667,235	1,324,674	101,317	375,619	476,936	1,801,610
Oklahoma	1,452,826	1,880	96,152	256,939	1,807,797	223,979	272,801	496,780	2,304,577
South Carolina	.....	49,234†	4,931	516,661	570,826	59,719	156,770	216,489	787,315
Tennessee	395,306	43,614	450,673	519,573	1,409,166	388,815	177,733	566,548	1,975,714
Texas	2,161,998	1,530,033	637,735	2,112,278	6,442,044	1,145,896	818,957	1,964,853	8,406,897
Virginia	10,130	980,304†	288,631	322,803	256,434	256,434	556,759	813,193	2,415,061
West Virginia	.....	55,732	215,423	449,640	720,795	279,532	6,286	285,818	1,006,613
TOTALS	$8,301,189	$6,669,324	$5,038,127	$8,807,174	$28,815,787	$4,935,899	$4,574,141	$9,510,040	$38,325,827

*Includes airframes, aircraft engines, propellers, other parts and related equipment.
†Does not include Naval vessels constructed at Charleston and Norfolk Navy Yards.

Southern Industrial Expansion in June



ALABAMA

BIRMINGHAM—Addition — Contract let for printing plant addition for Dewberry Engraving Co.

BIRMINGHAM — Expansion — Tennessee Coal, Iron & Railroad Co., plans expansion of tin plate mill as part of general improvement program to increase capacity of mill by 52,000 tons annually and feeders and cleaners would be installed for 28 tin stacks; the expansion will be in cold reduced plate capacity; estimated cost $1,000,000.

BIRMINGHAM—Building—Family Reserve Insurance Co. will construct new building for the home office.

GADSDEN—Plant — Contract has been let at $50,000 for recapping building for Goodyear Tire & Rubber Co.

HUNTSVILLE—Factory — John Blue Co. home office, Laurinburg, N. C., acquired property of Erwin Knitting Mills, West Huntsville, for establishing plant for expansion; will expend $60,000 for improvements.

MOBILE—Warehouse—Contract let for reconstruction of warehouse, cost approximately $90,000, for Sears Roebuck Company.

PRATTVILLE — Plant — Autauga Quick Freeze, Inc., will start work soon on construction of freezer plant, containing 492 lockers.

SHEFFIELD—Bus Terminal Shoals Transportation Co. plans construction of bus terminal to cost approximately $40,000.

ARKANSAS

Levee—U. S. Engineer Office, Little Rock, will have about $500,000 available for levee repairs on Arkansas River from the $12,000,000 voted by Congress for emergency flood control; approximately $50,000 will be available for repairs along White River.

HARRISON — Railways — Missouri and North Arkansas Railway from Neosho, Mo., to Helena, Ark., was sold to Samuel N. Summer of Columbus, O.; W. G. Bell of Springfield, O., and J. Tom Grimmett of Oklahoma City and Pauls Valley, Okla.; rehabilitation of the roadbed with new ballast and new steel rails will be undertaken.

JONESBORO—Plant—The Jonesboro Charcoal and Chemical Co. has organized to erect plant here.

LITTLE ROCK—Power Lines — Arkansas Power and Light Co. has filed application with Arkansas Public Service Commission for a certificate for construction of a 13,000-volt electric transmission line to improve services in Cross County at an estimated cost of $12,200.

WHEATLEY—Rice Elevator — Excavation completed and pouring of concrete started on rice dryer and storage elevator for Wheat-Grain Drying Co-operative.

FLORIDA

BELLE GLADE—Plant—Contract is let for construction of building, and warehouse and shop, also drainage and development of acreage to cost $250,000, for Florida Ramie Products, Inc.

FORT LAUDERDALE—Dam, Etc. — Board of County Commissioners of Broward County plans construction of dam and bridge on New River.

FORT PIERCE—Line—Florida East Coast Railway Co. has plans for railroad line, Fort Pierce to Okeechobee City; cost $1,500,000.

GOULDING — Warehouse — City Finance Committee recommended the issuance of revenue certificates in the amount of $100,000 to purchase holdings of the Gulf Atlantic Warehouse Co. for use by Pensacola Port Authority.

LEESBURG—Plant — Campbell & Prosser Co. have applied for permission to construct $200,000 citrus canning plant; modern construction; all waste to be converted into by-products; capacity for packing one million cases of juice per season.

MIAMI—Factory Building — Contract let at $10,000 for construction of factory building for Eagle Tire Co.

MIAMI—Alteration—Railway Express Co. let contract for altering and enlarging warehouse into garage; cost $10,000.

MIAMI—Warehouse—Reed Furniture Corp. has let contract for $23,976 warehouse.

MIAMI—Facilities—Seaboard Railway Co. has let contract at $50,000 for additional facilities, consisting of inspection pit, pump house and 3 hydrant houses.

MIAMI—Addition—Shaw Brothers Oil Co. received bid for addition to warehouse.

ORLANDO—Building — Allied Parts Co. plan to erect storage and display room, cost $23,000.

ORLANDO—Building — American Laundry & Dry Cleaning Co. will erect $20,000 building.

ORLANDO—Warehouse—Atlantic Drug Co. let contract for warehouse and office.

ORLANDO—Building—Diamond T. Sales & Service, will erect sales room and garage; cost $30,000.

GEORGIA

Plant — General Motors Corp., Detroit, Mich., reported negotiating for site in DeKalb County for automobile assembly plant.

ATLANTA—Expansion — Fulton National Bank acquired site bounded by Marietta, Forsyth and Fairlie Sts., for future expansion.

AUGUSTA—Radio—Roy V. Harris and associates incorporated Voice of Augusta, applied for license for erection of radio station.

KENTUCKY

LEXINGTON—Plant—Kawneer Co. received bids July 5 for $100,000 plant for manufacture of architectural metal products.

SOMERSET — Textile — The Goodall Co. plans to erect $100,000 plant at Somerset.

LOUISIANA

BOSSIER CITY—Bank—Regional war production board at Dallas approved construction of new bank building to cost $145,000.

LAKE ARTHUR—Structure — Contract let at $12,236 for construction of new one-story ice plant building for F. J. Scoggins.

NEW ORLEANS—Warehouse Building — Billingsley Engineering Co., Interstate Building, received bids for construction of new warehouse building for Flintkote Co.

SHREVEPORT — Generating Station — Southwestern Gas and Electric Co. has been granted priority rating for erection of $3,000,000 electric generating station on Caddo Lake.

MARYLAND

BALTIMORE—Building—Contract has been let for garage building for Cloverland Farms Dairy.

BALTIMORE—Shop — Rea Keech plans auto repair shop to cost $12,000.

BALTIMORE—Building — Fairmount Mill & Lumber Co. will construct $8,000 millwork storage building and $9,500 lumber storage building.

BALTIMORE—Room—Flynn & Emrich Co. will erect one-story, foundry cleaning and shipping room.

BALTIMORE—Truck Repair Shop — Guilford Realty Co. received bids for truck repair shop.

BALTIMORE—Building — Contract let for building for Armor Tread Tire Corp, cost $26,000.

BALTIMORE—Facilities—Gwynnden Realty Co. completed plans for lubrication facilities.

BALTIMORE—Building—Contract let for alteration and addition to building, for Behrend Bros.

BALTIMORE—Building—Contract let for terminal building for Hart & Clark Transfer Co.

BALTIMORE—Buildings—Contract let for X-Ray building at $10,000 and for pipe shop extension, at $7,000 for Bethlehem-Fairfield Shipyard, Inc.

BALTIMORE—Addition — Contract let for factory addition for Monroe Upholstering Co. cost $60,000.

BALTIMORE COUNTY — Barn — Contract let for barn, for Arthur Preece, Sparks; cost $11,000.

SPARROWS POINT—Mill—Bethlehem Steel Corp. plans expenditure of $15,000,000 for buildings, foundations and electrical equipment.

THURMONT—Factory—Cannon Shoe Company plans erection of shoe factory on 12-acre site along Western Maryland Railroad tracks.

MISSISSIPPI

BRANDON—Building—Carroll H. Kennedy acquired site for stone and concrete building; work to begin in July.

CHICKASAW COUNTY—Garment Plant — State Agricultural and Industrial Board plans voting on $75,000 garment building.

FULTON—Plant—T. B. Rushing plans construction of quick freeze plant and grocery in West Fulton, post-war.

HATTIESBURG—Warehouse—Contract let for construction of new two-story warehouse and one-story feed store at $56,932 for Pioneer Furniture Co.

HATTIESBURG—Plant—L. P. Sweatt, Gulfport, president of Mississippi Power Co., will construct second unit of Plant Easton, steam electric generating plant of the company located on Leaf River near Hattiesburg.

JACKSON—Expansion — Double Cola Bottling Co. plans $50,000 expansion program.

JACKSON—Building—J. L. House Lumber Co. plans erection of building.

JACKSON—Plant—Aponaug Manufacturing Co. plans establishment of garment plant.

JACKSON—Plant — Lumbermen's Supply Co. will erect warehouse.

JACKSON—Expansion—Pepsi Cola Bottling Co. plans improvements.

JACKSON—Building—Whitehead Motor Co. plans erection of building.

JACKSON—Expansion—Becker Roofing Co. plans new building.

JACKSON—Building—National Biscuit Co. plans erection of building.

JACKSON—Expansion — Townsend Paper Co. plans expansion.

JACKSON—Radio Station—Station WJDX will erect a new frequency modulation station at cost of $100,000.

MERIDIAN—Packing Plant—Owen Brothers will build a Packing Plant at an approximate cost of $85,000.

MISSOURI

BOLIVAR—Extension — Southwest Electric Cooperative has allotment of $130,000 for extension of lines.

ELDORADO SPRINGS — Extension—Sac-Osag Cooperative has allotment of $150,000 for extension of lines.

FAYETTE—Extension — Howard County Co-operative has REA allotment of $125,000 for electric power lines.

KANSAS CITY—Escalators — Otis Elevator Co. received order from Kansas City Terminal Co. for 8 escalators to carry passengers to and from train levels at Union Station, Kansas City; post war; cost $480,000.

MACON — Extension — Macon Electric Co-operative has REA allotment of $150,000 for electric power lines.

MOUNT VERNON—Extension—Ozark Electric Cooperative has allotment of $150,000 for extension of lines.

PEMISCOT — Electric Line — Pemiscot-Dunklin Electric Cooperative let contract for constructing of 50 miles of line.

PLATTE CITY — Extension — Platte-Clay Electric Co-operative has REA allotment of $60,000 for electric power lines.

ST. LOUIS—Warehouse—Ellermann Transfer Co. will construct warehouse and garage; cost $16,000.

ST. LOUIS—Factory—Stout Sign Co. plans factory and office.

ST. LOUIS—Factory—Contract is let for factory building for Southern Equipment Co.; cost $40,000.

ST. LOUIS — Farm Bureau Cooperative Locker Service, Ralls County, New London, will construct locker plant, incorporated by A. Lee Ely, Monroe City.

ST. LOUIS—Building — Walter Wippern will erect factory building to cost approximately $12,000.

ST. LOUIS—Alterations—Contract let for alterations to factory for Carlova, Inc.; cost $12,000.

REA, St. Louis, made following loan allotments to electric cooperatives:

Alabama — Baldwin County Electric Mbr. Corp., Robertsdale, $50,000; Butler—Pioneer Electric Cooperative, Inc., Greenville, $50,000;

Kentucky—Harrison County Rural Electric Coop. Corp., Cynthiana, $60,000;

Mississippi—Coahoma Electric Power As-

(*Continued on page* 66)

Southern Construction $539,626,000 at Half-Year Mark

$50,018,000

Total for June

SOUTH'S CONSTRUCTION BY TYPES

	June, 1945 Contracts Awarded	June, 1945 Contracts to be Awarded	Contracts Awarded First Six Months 1945	Contracts Awarded First Six Months 1944
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	$788,000	$7,141,000	$4,502,000	$1,844,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	550,000	940,000	3,362,000	1,397,000
Residential (Apartments, Hotels, Dwellings)	1,890,000	22,967,000	18,466,000	30,383,000
Office	157,000	1,085,000	859,000	154,000
	$3,385,000	$32,133,000	$27,189,000	$33,778,000
INDUSTRIAL	$15,208,000	$66,836,000	$247,595,000	$95,993,000
PUBLIC BUILDING				
City, County, State, Federal, and Hospitals	$10,291,000	$114,755,000	$108,580,000	$77,888,000
Housing	154,000	1,720,000	14,256,000	33,646,000
Schools	2,262,000	16,600,000	11,062,000	6,650,000
	$12,707,000	$133,075,000	$133,898,000	$118,184,000
ENGINEERING				
Dams, Drainage, Earthwork, and Airports	$9,369,000	$57,320,000	$59,617,000	$94,271,000
Federal, County, Municipal Electric	443,000	8,445,000	3,590,000	453,000
Sewers and Waterworks	2,403,000	10,472,000	19,443,000	14,191,000
	$12,215,000	$76,237,000	$82,650,000	$108,915,000
ROADS, STREETS AND BRIDGES	$6,503,000	$23,306,000	$48,294,000	$47,087,000
TOTAL	$50,018,000	$331,587,000	$539,626,000	$403,957,000

SOUTH'S CONSTRUCTION BY STATES

	June, 1945 Contracts Awarded	June, 1945 Contracts to be Awarded	Contracts Awarded First Six Months 1945	Contracts Awarded First Six Months 1944
Alabama	$4,055,000	$5,900,000	$90,258,000	$24,413,000
Arkansas	642,000	1,236,000	4,501,000	1,873,000
Dist. of Col.	1,554,000	1,010,000	21,209,000	12,715,000
Florida	7,850,000	17,176,000	34,871,000	51,597,000
Georgia	1,105,000	49,234,000	18,257,000	24,769,000
Kentucky	.244,000	2,790,000	9,848,000	16,248,000
Louisiana	2,131,000	23,806,000	28,392,000	28,324,000
Maryland	2,350,000	28,369,000	29,230,000	30,907,000
Mississippi	376,000	32,439,000	17,556,000	7,081,000
Missouri	2,010,000	25,918,000	9,878,000	15,430,000
N. Carolina	3,699,000	7,756,000	17,678,000	13,923,000
Oklahoma	444,000	10,000,000	16,738,000	15,234,000
S. Carolina	689,000	15,381,000	6,342,000	13,550,000
Tennessee	874,000	12,193,000	24,563,000	13,991,000
Texas	12,775,000	77,997,000	171,069,000	73,250,000
Virginia	7,216,000	12,081,000	31,305,000	49,347,000
W. Virginia	2,004,000	8,301,000	7,931,000	11,305,000
TOTAL	$50,018,000	$331,587,000	$539,626,000	$403,957,000

SOUTHERN construction passed the half-year mark with a total of $539,626,000, or thirty-three per cent ahead of the figure for the comparable period of last year.

Industrial construction, public building and highway work were mainly responsible for the increase, as these three classifications all showed increases above the valuation of contracts during the first six months of 1944.

The accumulation of industrial construction contracts so far in 1945 is $247,595,000. This figure is over two and one-half times that for industrial construction recorded during the first six months of 1944.

Current public building is about thirteen per cent ahead of the value set for the southern states during the first half of last year. The 1945 six-month total is $133,898,000; the 1944 six-month total $118,184,000.

Highway construction is up about two per cent with a six-month total of $48,294,000. Engineering construction so far this year totals $82,650,000 and private building, $27,189,000. Totals for these two types for the initial half of 1944 were $108,915,000 and $33,778,000, respectively.

Seven states and the District of Columbia accounted for almost eighty per cent of the $539,626,000 half-year total. Activity in all showed valuations above the twenty million dollar level. The individual totals were:

Texas, $171,069,000; Alabama, $90,258,000; Florida, $34,871,000; Virginia, $31,305,000; Maryland, $29,230,000; Louisiana, $28,392,000; Tennessee, $24,563,000; District of Columbia, $21,209,000.

June's contribution to the six-month total was $50,018,000, a figure that embraces $15,208,000 for industrial construction, $12,707,000 for public building, $12,215,000 for engineering construction, $6,503,000 for highways and bridges and $3,385,000 for private building.

The industrial total represents a wide variety of enterprises. Federal building, mostly military, is the important item in the public total. Airports and earthwork make up the large part of the engineering total. Residential building was the highest valued among the private projects.

While representing a decrease from the figure for the preceding month, the June industrial total of $15,208,000 was ahead of the valuation placed on industrial construction for June 1944.

Industrial projects reported as active, either in the proposed stage or placed under contract during June, included:

E. I. du Pont de Nemours & Co. let contracts in connection with $22,000,000 nylon salts plant at Orange, Texas.

Bethlehem Steel Corp. plans $15,000,000 expenditure for expansion at Sparrows Point, Md. including 56-inch four high tandem cold mill.

Gair-Santee Corp. plans $12,000,000 paper mill in Orangeburg County, S. C.

Ford Motor Co. reported plans $10,000,000 assembly plant and parts depot at Hapeville, Ga.

Monongahela West Penn Public Service Co. announced program of substation and line construction to involve $6,000,000 expenditure.

Virginia Electric and Power Co., Richmond, Va., proceeding with $3,000,000 rural electric program.

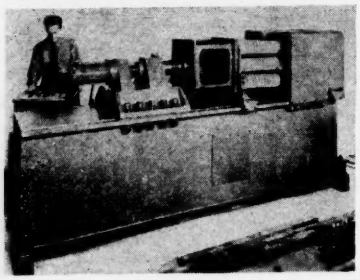
(*Continued on page 74*)

by

SAMUEL A. LAUVER

Industrial News

Baldwin Builds New Fatigue Testing Machine



Increasing demand for fatigue testing machines that will handle small pieces or subassemblies of larger structures has led to development and production by Baldwin Locomotive Works' Southwark Division of two new pieces of testing equipment. Special features of these machines will make it possible to approach an actual field test much closer than before. It should be valuable for the testing of automotive and airplane parts or any structural components or specimens.

The Southwark universal fatigue testing machine which provides a dynamic load application of 20,000 pounds in one direction is made possible through an hydraulic preloading attachment of 10,000 pound capacity. The high operating speed of approximately 2,000 load cycles per minute, at constant force as opposed to constant deflection, are two important advantages.

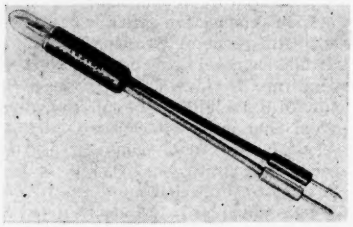
Any predetermined alternating load is kept automatically constant regardless of the changes of deflection that may occur in the specimen under test. Other slower speed machines, whose load is applied with eccentric cranks, maintain a constant alternating deflection, regardless of load.

Southwark's other new Universal Fatigue Testing Machine of 1,000 pound alternating force capacity also has a static preloading attachment which results in a force capacity of 2,000 pounds in one direction. It was developed for tests in tension-compression, bending or torsion.

The torsion testing attachments for the latter have a capacity up to 30,000 inch pounds and permit the testing of specimens exceeding one inch in diameter. The standard tension-compression fixture for testing specimens is equipped with tapered collets to grip plain cylindrical pieces. Bending fixtures are available up to 6,000 inch pounds bending moment for testing flat plate specimens up to approximately ⅝ inch in steel, ½ inch in aluminum alloys and one inch in plastics.

New Pocket Circuit Tester Announced by Amerline

A new all-purpose circuit tester for all who have to do with electricity, has been made available by Amerline, manufacturer of plastic and metal specialties, 1753 North Honore St., Chicago 22, Illinois. It is convenient vest-pocket type, and indicates voltages from 90 DC, and 60 AC, to 500 volts AC or DC. A



General Electric neon lamp on the top glows in varying intensities indicating circuit conditions. No glow indicates a dead line. The lamp lights on currents as low as one microampere.

The new tester is used for locating blown fuses, trouble-shooting in cords and appliances such as electric irons, toasters, etc., testing radio frequency, receivers, plate circuits, and screen grids; for testing spark plugs, meters, condensers, armatures, etc. The uses are innumerable in shop, plant or field.

Caine Names Southern Agents

Caine Steel Company, Chicago, announces the appointment of Southern agencies to handle corrugated steel piling, as follows:

For Maryland and Delaware: General Supply and Equipment Co., 530 E. 25th street, Baltimore 18, Md.; for north Florida: Florida Equipment Co., 1205 W. Forsythe street, Jacksonville 5, Florida; for counties adjacent to Tampa: Hart Machinery Co., 2613 4th avenue, Tampa 1, Florida; for the Kentucky counties of Boone, Kenton, and Campbell: Carroll, Edwards & Co., Richmond & McLeans streets, Cincinnati, Ohio: South Carolina: Bell-Lot Machinery Co., 824 Lady street, Columbia, S. C.; for the Virginia counties adjacent to Norfolk: Hampton Roads Tractor & Equipment Co., West 39th & Killam, Norfolk, Virginia.

Link-Belt Announces New Cargocrane

Link-Belt Speeder Corp., of Chicago and Cedar Rapids, recently announced addition of a new member to its line of general purpose Cargocranes.

This new Model YC-5 Cargocrane is a one-man operated machine of exceptional maneuverability. It is easy of control and is supplied with abundant power for rapid loading, unloading and stacking of materials.

It has a lifting capacity of 2900 lbs. at 15 foot radius, up to 15,000 lbs. at 3½ foot radius. Boom swings in a full 210 degrees: with short turning radius of chassis. A wheel base of 10 feet 9 inches permits it to work in narrow spaces. Steering is accomplished by dual-wheels operating on a pivoted axle. The entire unit is operated by a three-speed transmission from a 57 H. P. gas engine, for traveling, swinging, hoisting and boom hoist. There are three traveling speeds forward and one reverse with a low speed of 1.9 M.P.H. and a high speed of 6.75 M.P.H. Boom is of a goose-neck type, 20 foot long and can be furnished either in one piece or telescopic.

Numerous plants, warehouses, shipping and loading platforms, will find this new Cargocrane a compact and sturdy unit capable of swift performance in the loading and stacking of the materials, as well as in assembly and erection work. A copy of explanatory Booklet 2071, fully describing this machine, may be had by writing direct to Link-Belt Speeder Corporation, Chicago.

Stevens Appointed Labor Relations Consultant

Robley D. Stevens, former official of the U. S. Department of Labor, Wage and Hour public contracts divisions and the War Labor Board, has been appointed to the staff of the Industrial Corporation as consultant on labor relations.

In announcing Mr. Stevens' appointment, G. Harvey Porter, Executive Vice-President of the Corporation, stated that "with the advent of complicated and far-reaching labor legislation now on the statute books of the country, it is important to the work of this corporation and the Baltimore industries it serves, that it add a consultant to its staff experienced in techniques, red tape and procedures of the various government agencies which are concerned with labor legislation."

The Industrial Corporation publishes a bulletin outlining its complete program. Copies are available for the asking at the home office: 217 Baltimore Life Building, Baltimore 1, Md.

Southern Fabricators Get Big Aluminum Orders

Big orders totaling more than 19 million pounds of aluminum sheet have been placed with southern fabricators by the U. S. Corps of Engineers, according to an announcement by the Aluminum Company of America. The sheet will be rolled in Alcoa mills.

An order for 2,303,000 pounds of sheet was awarded to the Armco Drainage & Metal Co., of Atlanta, Ga. The sheet will be used for roofing and siding on portable Army warehouses.

Two orders have been placed with the Southern States Iron Roof Co., of Savananah, Ga.; one for six million pounds of aluminum sheet for barracks roofs and the second for 11,414,000 pounds intended for roofing and siding of shell buildings.

All of the aluminum roofing and siding under construction will be shipped to the Pacific area.

Tube Turns Engineer Service

Carl B. McLaughlin will head up the recently established engineering service division of Tube Turns, Inc., Louisville, Ky., it is announced by John G. Seller, the firm's vice president in charge of sales. The division is rapidly developing new applications for Tube-Turn welding fittings.

McLaughlin formerly was associated with Tube Turns' Pittsburgh office. A native of Jacksonville, Ill., he graduated from the University of Illinois in 1931 and was a metallurgist-engineer with the U. S. Steel Corp. before joining Tube Turns in 1943.

Carl B. McLaughlin

T-Ring Packing Announced

A new product in the form of a T-ring packing is announced by The Weatherhead Company, 300 East 131st street, Cleveland 8, Ohio. It is offered as presenting to agriculture, aircraft, automotive, construction, machine tool, marine, mining, oil, plastics, railroad, refrigeration, and steel industries a revolutionary packing in reciprocating, static and special applications. It consists of a resilient sealing ring of synthetic rubber in a T-section backed up or supported on the side by two non-extrusion guards, which are made of laminated phenolic material. When installed the slight compression on the synthetic rubber provides a static seal.

An 8-page illustrated folder is available from the main office or any of its branches.

Towmotor Appoints Hooper

Towmotor Corporation announces the appointment of A. W. Hooper as District Sales Representative for the following area: Northern Alabama, Northern Georgia, Northern South Carolina, all of North Carolina and the Eastern part of Tennessee. Mr. Hooper's office is at 7 North 55th Place, Birmingham 6, Alabama; telephone No. 9-2591. Mr. Hooper has been engaged in sales and application engineering of Industrial trucks for many years in this area, and is well known as a manufacturer's agent for this type of product.

May Spindle Activity

Cotton spindles of the South continued their high average of activity as compared with those in the remainder of the United States during May. Of the 17,620,696 southern spindles in place, 17,296,590 were active for a total of 8,083,706,841 hours, an average of 459 per spindle, while spindles in New England and states outside the South only averaged 273 hours each.

Group Life Insurance on Installment Purchasers

An unusual development of Group Life insurance written on the lives of installment purchasers of automobiles, radios, washing machines, etc., rather than on the lives of employees has been made available to the

(*Continued on page* 62)

AMERICAN MORTAR CREW IN ACTION ON PACIFIC BATTLEFRONT. SOLDIER AT LEFT IS GETTING TELEPHONE REPORTS FROM AN OBSERVER.

Millions of Military Telephones

In the last five years the Bell System has furnished millions of telephones for war, including 1,325,000 head sets for air and ground forces and more than 1,500,000 microphones. . . . Also more than 1,000,000 airplane radio transmitters and receivers . . . 4,000,000 miles of telephone wire in cables . . . a vast quantity of switchboards, gun directors and secret combat equipment. That helps to explain why we are short of all kinds of telephone facilities here at home.

BELL TELEPHONE SYSTEM

Group Life Insurance On Installment Purchasers

(*Continued from page* 60)

instalment customers of Commercial Credit Company, Baltimore. This contract, with a return of peacetime conditions, is expected to become one of the largest Group Life insurance policies ever written, and may involve as much as $300,000,000 of insurance. Any installment purchaser is entitled to the insurance. If he dies, any unpaid balance is cancelled and the property belongs to his estate.

The announcement of this significant transaction was made simultaneously in Newark by Franklin D'Olier, president of The Prudential Insurance Company of America, the underwriting company, and in Baltimore by A. E. Duncan, chairman of the Board of Commercial Credit Company. The Prudential was represented in the negotiations by Alexander and Alexander, Inc., nationally known insurance brokers.

Chain-Flight Models Broaden American Conveyor Line

For raising bulk materials up steep pitches impractical for a belt, the American Conveyor Company of Chicago announces Flight-Veyor, the latest addition to its line of portable electric conveyors. Equipped with 1¾" chain-flights instead of a belt. It is designed to handle almost any type bulk material.

It is finding wide application in unloading sand, moving metal parts, metal shavings, cinders, chemicals, clay, grain, salt and other similar bulk materials. Built in four sizes—two widths, 8 and 12 inch; two lengths, 13 and 20 feet.

All models are equipped with 40-foot heavy duty, rubber covered cable. Drive is by means of roller sprocket chains through counter shaft . . . sprocket shafts mounted on self-aligning ball bearings permanently sealed to retain lubricant and keep out dirt . . . two steel-frame, 6-inch take-ups at head pulley . . . heavy duty double pole switch, housed in protecting box . . . rigid, heavy gauge steel frame, welded throughout, no bending or twisting. Heavy high carbon steel flight pan.

Further information is available from the American Conveyor Company, 2435 Indiana avenue, Chicago 16, Illinois.

Hanna Engineering Offers Cylinder Calculator

A new hydraulic cylinder calculator has been developed, and is offered complimentery, by Hanna Engineering Works, 1765 Elston Avenue, Chicago 22, Illinois. In the form of an incased slide-rule, this calculator has four graduated windows on one side, and three on the other. It eliminates the need for multiple tables, graphs, charts and data, and gives instantly the required values based upon other values in the same scale. Nineteen distinct operations may be performed on its scales, including cylinder size, pressure, cylinder speed, size of pump, valves, pipe, and motor.

"Bull Dog" Floor Clips Back

The Bull Dog Floor Clip, Winterset, Iowa, announces it is back in full production of Bull Dog sleeper anchors, metal wall plugs, furring ties, buck anchors, and veneer anchor slots after a destructive warehouse fire last December. Represented by 165 agencies throughout the United States, and having distributors in Canada and London, this manufacturer is credited with having sold 60 million units in former operations. They are now ready for rapid duplication of that record.

P&H Introduces Welder for Cast Iron

"Harcast," an all-position mild steel electrode for welding and repairing cast iron is a development of the Harnischfeger Corp., builders of P&H welding equipment. It fuses well with either mild or medium carbon steel, thus making it suited for joining cast iron with other types of steel. With a yield point of 50,000 pounds p.s.i., the deposited metal has an ultimate tensile strength of 60,000 pounds, roughly double that of a good grade of cast iron.

Usable with either AC or DC machines (straight or reverse polarity on DC), "Harcast" works well at low amperage, thus minimizing the dilution effect at the fusion zone and permitting a higher quality of machining. Reverse polarity on DC current produces a smooth bead with deep penetration. On DC straight polarity, penetration is less, higher beads are built, and there is less spread in the fusion zone. For full particulars on "Harcast" electrodes, write Harnischfeger Corporation, Welding Division, Milwaukee 14, Wisconsin.

Dr. Charles Stine Retires

For reasons of health, Dr. Charles M. A. Stine retired on June 30 as a member of the Executive Committee of E. I. du Pont de Nemours & Company and as its advisor on research and development. He has retained his positions of vice president and director.

Dr. Stine was succeeded on the Executive Committee by Roger Williams, assistant general manager of the Explosives Department, who was elected to a vice president and member of the Board of Directors and assumed the duties of advisor on research and development.

The retirement of Dr. Stine as a member of the Executive Committee came after 38 years with the company in various capacities closely identified with research and development. In seventeen years, after joining the company in 1907, Dr. Stine rose from a minor research position to chemical director.

He was vitally concerned in the discovery of major improvements in explosives permissible for use in coal mines, and in low-freezing dynamites.

Schorle Named Works Manager

Herman J. Schorle has been named works manager of the Holyoke works of Worthington Pump and Machinery Corp. He succeeds Harry A. Feldbush, who moves to Harrison, N. J., to take charge of the company's general offices.

The Holyoke plant of Worthington portable and automatic air compressors, contractors' air tools, refrigeration units, air conditioning equipment, and vertical turbine pumps.

Nelson B. Buehrer Joins Evans Engineering Company

F. J. Evans Engineering Co. announces that Nelson B. Buehrer has become a new member of the firm with headquarters at the general offices in Birmingham, Ala. He will direct sales of heating and air conditioning equipment to the dealers and gas utilities served by the company throughout the south.

He was formerly with Surface Combustion Corp., Toledo, O. Evans Engineering is manufacturer's agent for the Toledo company's complete line of products including Janitrol unit heaters for stores and factories, Janitrol conversion burners, conditioners and gravity burners for homes, Surface Combustion heat treat furnaces for industry and Kathabar air conditioning equipment.

"Mr. Buehrer's background in heating engineering and sales gained during the past 17 years with Surface Combustion should prove of benefit to southern heating dealers and utilities in developing postwar business." F. J. Evans, president of the engineering company, points out.

Blaw-Knox Appoints Southern Representatives

The Ellis and Lowe Company, 226 S. Franklin Street, Tampa, Florida has been appointed distributor for the Tampa district of grating products of the Blaw-Knox company of Pittsburgh.

The Acme Wire & Iron Works, 1343 W. Laurel Street, San Antonio, Texas, has been appointed distributor of road products and buckets for the Blaw-Knox Company of Pittsburgh.

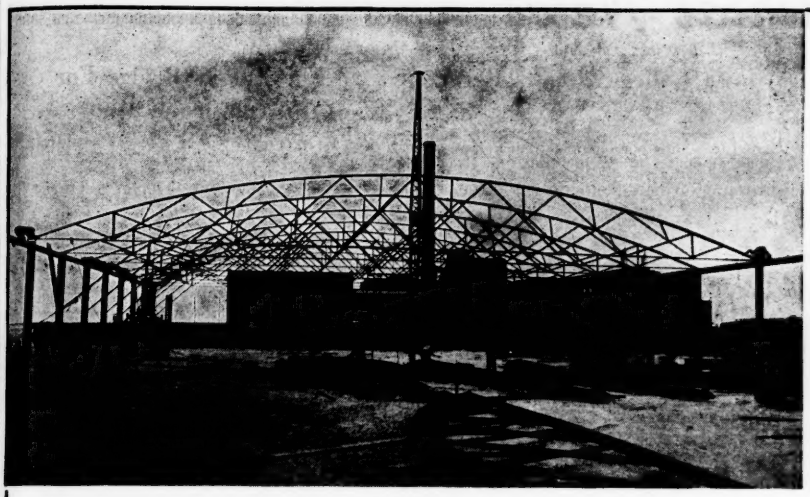
Norge Appoints Dean Spencer

Dean Spencer, who has been identified with the Norge line of household appliances for the past 14 years, has been appointed regional manager of the Norge division of the Borg-Warner corporation in the Southeast, it is announced by M. G. O'Harra, vice-president and general sales manager.

Spencer has been field service superintendent in charge of operations in New York and Chicago since 1942. As regional manager he will be responsible for Norge distribution in the territories of Charlotte, N. C., Charleston, S. C., Atlanta, Ga., Jacksonville, Fla., and Johnson City, Chattanooga, and Knoxville, Tenn.

Herman J. Schorle

Nelson B. Buehrer



ELECTRIC ARC WELDED

Structural Frame For Warehouse Port St. Joe, Fla.

BETTER CONSTRUCTION AT LOWER COST

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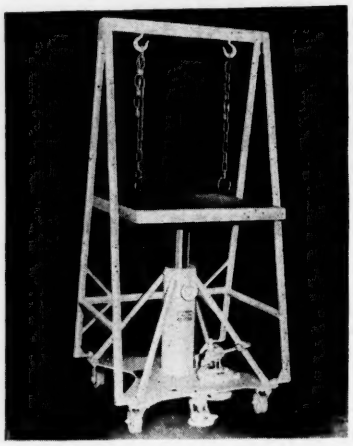
Watts Building **Birmingham, Ala.**

Industrial News

New Die Separator

Lyon-Raymond Corporation, Greene, N. Y., announce another optional feature for their portable hydraulic elevating table. This Die Separator consists of a tubular superstructure which fastens to the base of the table by four bolts with wing nuts.

Dies are separated by elevating the table top, fastening the top section of the die to the superstructure by means of the chains,



Hydraulic Elevating Table

then lowering the table top with the bottom section of the die.

Being readily demountable, the die separator does not limit the use of the table which may be made available for such work as the transferring of dies in and out of presses, the support of overhanging materials, an adjustable height assembly bench, and other handling and work positioning tasks for which it was designed.

Koehring Has New Dragline

A new 1½ yard shovel-crane-dragline, the Koehring 605, has just been announced by the Koehring Company, Milwaukee. It is the second addition to the Koehring postwar line, following the recently announced Koehring 205½ yard excavator.

Three basic requirements appear in the design of the new Koehring 605: Ease of operation, strength and simplicity, quick convertibility.

Main drum clutches of the 605 are of a new, improved design. Power engaged but manually released, they enable the operator to retain the "feel" of the load at all times. Frequent adjustments are unnecessary. Independent power or live boom control or a combination of both are available. The shovel dipper trip is the trigger-fast pawl-and-ratchet type that is exclusive on Koehring excavators. Crowd-retract and swing-traction clutch levers work easily because troublesome partial engagement of the unused clutch is eliminated by a new double fulcrum linkage. The high "A" frame on the 605 is raised or lowered by power. Hook rollers are easily adjusted.

"Maintenex," Cleaning Powder

"Maintenex" is the name of a cleaning agent developed under war conditions by A. C. Horn Company, Long Island City, New York, who point out certain novel qualities that make it a "must" where labor is scarce and large areas of floorspace must be cleaned. The daily task of cleaning hundreds of millions of square feet of floor surface in chain stores, department stores, showrooms, banks, factories, schools, hospitals, dairies, packing plants, and office buildings is enormous.

War restrictions on the use of oils made it necessary that other cleaning compounds be developed capable of emulsifying dirt and soil rapidly so that it could be rinsed away without-deposit. Maintenex is a powder. Mixed with water at the ratio of one ounce per gallon it produces a fluorescent color. No pre-measuring is required. The appearance of the characteristic coloring, as the powder is added to water, is an instant indicator that the correct ratio has been attained, and that any further addition of the powder would be waste.

Iowa College Honors Beecher

Milton F. Beeher, director of research for the Norton Co., Worcester, Mass., manufacturers of abrasives, grinding wheels and refractories, has been awarded an honorary degree of doctor of engineering by Iowa State College. The Iowa State College Alumni Association of Chicago, the General Alumni Association and Iowa State College, also honored him by the presentation of a Merit Award at Alumni Day.

Mr. Beecher was commended for his work in the field of physical improvement of human surroundings and facilities through ceramics and its associated industries.

He was graduated from Iowa State College in 1910. Five years later, he was granted a professional degree of ceramics engineer by the same institution.

Immediately following graduation, he became yard foreman of the Boone Brick, Tile and Paving Company, Boone, Iowa. In 1911 he was employed as assistant to the superintendent of the Western Stoneware Company, Monmouth, Illinois, but later in the year returned to the Engineering Experiment Station at Iowa State College, where he served as assistant engineer from 1911 to 1915.

He became connected with Norton Company in May, 1915, where he has been director of research for many years. There he amplified the company's investigational and development activities, improved coordination with manufacturing groups and exercised leadership in national ideas as to possibilities of ceramics in new channels of use.

Mr. Beecher is author of some 9 significant publications in the field of ceramics and is the owner, in several cases with partners, of 19 patents. These lie in such classifications as lightweight refractory brick; translucid anti-slipping tile; anti-slipping vitrified tile; safety tread tile; safety tread ceramic tile; tunnel kilns; methods of manufacturing laminated ceramic articles, and a method of bonding such products as alumina, magnesia, carbide grains, silicate granules and abrasives with ceramic materials.

He is a charter member of the Fellows of the American Ceramic Society, and served that society as a member of its committee on standards from 1917 to 1923 and of its committee on publications from 1933 to 1936. He also served on its board of trustees from 1919 to 1921. In 1944, he was elected president of the Institute of Ceramic Engineers and has been affiliated most of the time with its refractories division. He is a member of the founders' group of the Institute of Ceramic Engineers, of Tau Beta Pi, national engineering honorary fraternity; and Phi Kappa Phi, honorary scholastic fraternity. He recently was honored by election to Sigma Xi, national scholastic fraternity, by Worcester Polytechnic Institute.

Cement Association Announces Personnel Staff Changes

New assignments of Portland Cement Association staff personnel have been announced by Wm. M. Kinney, general manager of the Association.

M. J. McMillan, manager of the Washington Office since 1936, has gone to New York as regional manager of the eastern offices, 347 Madison Ave., New York 17.

James E. Dunn, district engineer of the Richmond, Va. office since 1938, has become manager of the Washington Office, 837 National Press Building, Washington 4, D. C.

Gordon S. Maynard, field engineer in North Carolina and Virginia for the Association since 1937, has become District Engineer with headquarters at 1210 State Planters Bank Building, Richmond 19, Va.

Whitney Stone Elected President

Lt. Col. Whitney Stone was recently elected president of Stone & Webster, Inc., succeeding George O. Muhlfeld who now becomes vice chairman of the board of directors. Col. Stone first joined the firm of Stone & Webster in 1930 and became an Executive Vice President in 1936. In January 1942 he resigned his position and withdrew from all his directorships to join the Army Ordnance Department, and since that time has served in the New York, Cleveland and Boston Ordnance Districts. During the past year until the army released him to return to Stone & Webster, he has been deputy district chief of the Boston Ordnance District.

The firm through its subsidiaries has long been among the leaders in the fields of engineering and construction, public utility supervision and investment banking.

New Limits Bridge For Sorting of Resistors

Model 81 Associated Research's Low Range Limits Bridge is one of a series of units for the rapid comparison of large quantities of resistors having comparable values. It is adapted to volume testing of resistance values up to 2,000 pieces an hour—particularly for

testing motor windings, transformer primaries or secondaries, rheostats, potentiometers, lamps, shunts or multiplier resistors—any item that offers ohmic resistance to flow of current. The manufacturer is Associated Research, Inc., 231 S. Green Street, Chicago 7, Ill.

Steel Industry Ready

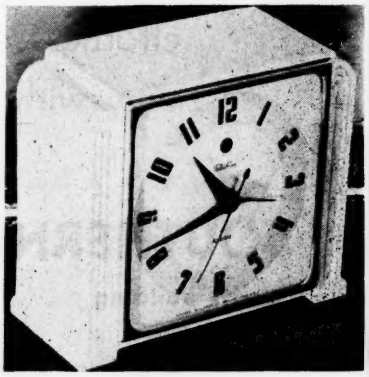
Virtually no reconversion problems will confront the United States steel industry when hostilities cease. Steel products representing ten years of technological advancement, including four or more years of wartime development, will be immediately ready to supply peacetime needs.

Chairman Irving S. Olds of U. S. Steel promises an improved steel quality for every sort of use from the automobile to the tin can, from screwdriver to lawnmower.

Many useful alloy steels which were formerly produced in limited quantities in electric furnaces are now produced in open hearths in large quantities. Improvements have been made also in the production of the so-called intensified steels, their hardenability being enhanced by the addition of a boron to the molten mass. The stainless steels have had to endure some wartime tests not previously experienced.

More Alarm Clocks

Alarm clocks are coming back. The American Cyanamid Co., Plastics Division, announces that by mid-summer there will be a supply of telechron electric alarm clocks on dealers' counters. This beetle plastic clock is molded by Northern Industrial Chemical Company and General Electric Plastics Division. It is said that the beetle housing can be molded in any desired color, and that it offers a strong and abrasive resistant casing for the movements.



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All Kinds of Structural Timbers and Lumber Pressure Treated with Creosote Oil or

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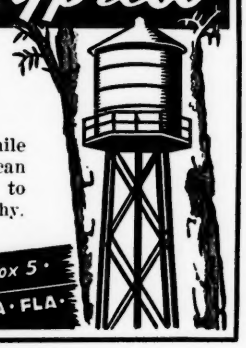
POLES • CROSS ARMS • PILING • TIES
POSTS, BRIDGE AND DOCK TIMBERS

Treating Plants—Jacksonville, Fla., Norfolk, Va., Long Island City, N.Y.

DAVIS *Cypress* TANKS



Be Sure First

Get a Davis tank first, and while you will remember it, you can always forget it. It seems to take care of itself. Find out why.

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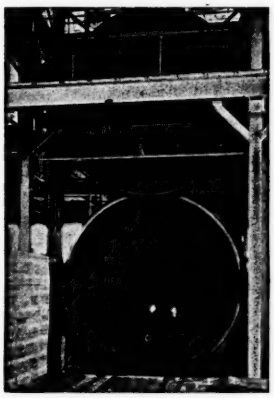
Lancaster TANKS



15'3" O.D. x 40' Long Vulcanizer

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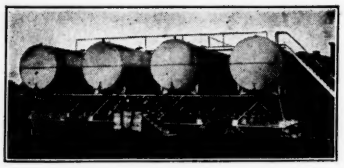

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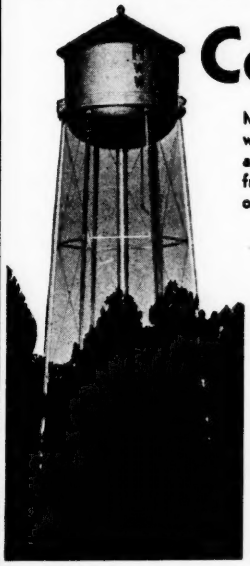

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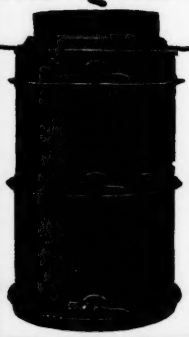

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Southern Industrial Expansion

(*Continued from page* 58)

sociation, Clarksdale, $50,000;

Mississippi—Twin County Electric Power Association, Hollandale, $60,000;

Missouri — Howard County Electric Coop. Assoc., Fayette, $125,000;

Missouri—Platte-Clay Elec. Coop., Inc., Inc., Platte City, $60,000;

Missouri—Howell-Oregon Elec. Coop., Inc., West Plains, $125,000;

Oklahoma—Red River Valley Rural Elec. Assoc., Marietta, $40,000;

Oklahoma — Verdigris Valley Elec. Coop., Inc., Collinsville, $50,000;

Oklahoma—Canadian Valley Electric Coop., Inc., Seminole, $125,000.

ST. LOUIS—Buildings—Continental Oil Co. plans constructing $100,000 administration building and bulk plant.

ST. LOUIS—Remodeling — Alvin B. Vittert of Vittert Construction & Investment Co., plans remodeling office building to cost approximately $150,000.

ST. LOUIS—Plant—Ford Motor Co., Dearborn, Mich., acquired 100-acre tract for erection of an assembly plant with daily capacity of 500 automobiles.

ST. LOUIS—Addition—Contract is let for brick, one-story addition, to building, for Republic Bag Company.

UNIVERSITY CITY — Heatmaster Furnace Oil Co., incorporated by E. L. Joaquin.

NORTH CAROLINA

AHOSKIE—Plant — J. N. Vann, Pembroke Baker, of Suffolk, and John O. Askew, of Harrellsville, plan erecting a $50,000 shelling and cleaning plant.

ASHEVILLE—Industry — Pinny Craft Organization leased 2-story building in the Koon Development, Biltmore, for manufacture of women's and children's apparel.

ASHEVILLE—Building — First National Bank and Trust Co., has site southeast corner of Haywood Road and Fairfax Avenue for annex.

AVON—The Cape Hatteras Electric Membership Corp. has approval of REA to erect generating station and 40 miles at cost of $115,000.

BURLINGTON—Plant—Burlington Freezer Locker Corporation let contract for frozen food locker plant to cost $50,000.

CHAPEL HILL—Plant — Contract let for milk pasteurizing plant for Farmer's Dairy Cooperative, Inc.

CHARLOTTE—Plant—Canada Dry Ginger Ale, Inc., acquired plant equipment and distribution facilities of Canada Dry Bottling Co.

CHARLOTTE—Bakery — Contract let for construction of bakery, for Queen Pie Co.

CHARLOTTE—Building—Powers & Anderson Dental Co., Inc., acquired site for erection of building.

CHARLOTTE—Alterations — Southern Bell Telephone Co. has permit for extensive alterations in central office building, cost approximately $20,000

DURHAM—Track Scale—Contract has been let for track scale for Seaboard Air Line Railway.

FRANKLIN—Lockers—W. S. Bearden and A. B. O'Mohundro acquired site for erection of 500 locker freezer plant; will operate as Macon County Frozen Foods, Inc.

GREENSBORO—Plant—Gaylord Container Co. plans erecting plant on 14-acre tract on Battleground Road; applied for permission to build spur track across Battleground road.

GREENSBORO—Transparent Packing, capital $800,000, incorporated by D. H. Hudgins.

HERTFORD—The Albemarle Electric Membership Corp., has approvel of REA for constructing 510 miles of rural line at cost of $635,000.

HICKORY—Cold Storage Building—Elliott Building Co., Hickory, has contract at approximately $80,000 for construction of cold storage building in Hickory.

HIGH POINT—Plant — Fli-Back Corporation has permit to erect two semi-fireproof buildings to cost $30,000.

HIGH POINT—Security Upholstering Co., capital $100,000; upholstered furniture; incorporated by A. C. Bulla.

Extensions—REA approved application for loans totaling $445,000 from the following: Woodstock Electric Membership Corp., $230,000 to build 165 miles of line; Cornelius Electric Membership Corp., $119,000 to build 90 miles of line; Wake Electric Membership Corp., $186,000 to build 129 miles of line; Randolph Electric Corp., $85,000 for membership extension of existing lines.

RUTHERFORD—Rural Lines— Rutherford Electric Membership Corp., Forest City, has REA allotment of $118,000.

SHELBY—Plant—Carolina Locker Co. plans erecting $50,000 freezer locker plant.

STEDMAN—Electric—South River Electric Membership Corp. received bids for 473 miles of rural electrification.

WILKESBORO—Plant—Carolina Refrigeration Cooperative Association, capital $710,000, incorporated by T. E. Story.

OKLAHOMA

CLEVELAND—Lines — Oklahoma Electric Cooperative let contract at $19,082 for 18.3 miles of line to serve 73 members.

DURANT—Electric Lines — Southwestern Electric Cooperative has REA funds of $160,000 for extensions to rural electric lines.

GARVIN—Lines— Rural Electric Cooperative, Inc , let contract for construction of 39.7 miles of line.

LINDSAY—Electric Lines — Contract has been let at $33,719 for construction of 39.7 miles rural electric lines; Rural Electric Cooperative, Inc., owners.

MARIETTA—Extension—Red River Valley Rural Electric Association let contract at $15,058 for construction of 39 miles of line.

NORMAN—Electric—Contract let at $19,082 for construction of 18.3 miles of rural electric lines; Oklahoma Electric Co-operative, Norman, owners.

Expansion—Public Service Co. of Oklahoma have under consideration $5,000,000 expansion program; included in this estimate is over 250 miles of rural transmission lines and other work.

TULSA—Expansion—Wesley Jones and T. Jack Foster, acquired Chalmers Electric Service Company; will operate.

TULSA—Plant—William L. Price organizing the Southwestern Nut & Oil Co., with capital of $200,000 to process peanuts, soy beans and cotton oils.

SOUTH CAROLINA

CAMDEN—Plant—Power Veneer Co. starting work on rebuilding of burned finishing unit.

CHARLESTON—Icing Platform—Seaboard Air Line Railway will erect an 8-car overhead loading platform.

CHARLESTON—Docks—East Shore Terminal Co., capital $30,000, chartered with L. L. Oliveros, president, to take over operation of Seaboard Airline Docks.

CHARLESTON—Plant—St. Andrew's Freezer Locker Co. plans erection of 1,000 unit freezer locker plant.

COLUMBIA—Plant—Lower Richland Farmers Co-operative starting work on 306-locker plant; cost $40,000.

DARLINGTON — Diamond Hill Plywood Company, capital $100,000, incorporated by J. S. Ramsey, Jr., president.

EASTOVER—Plant—Lower Richland County Farmers Cooperative Association let contract at $30,400 for erection of refrigeration locker plant and abattoir.

GREENVILLE—Plant — Chamber of Commerce included in their post-war program construction of dry and cold storage plant; 620 feet long and 280 feet wide with a court for trucks and railway siding; estimated cost $800,000.

HAMPTON COUNTY—Extension — Hampton and Branchville Railroad applied to Interstate Commerce Commission for authority to extend its line of railroad in Hampton County, 12 miles.

ORANGEBURG COUNTY — Paper Mill — Gair-Santee Corp., incorporated in state of Maryland and domesticated in South Carolina, a subsidiary of Robert Gair, Inc., of New York City, will erect $12,000,000 paper mill in Orangeburg County near Southern terminus of the Francis Marion Bridge on U. S. Highway 15 across Lake Marion; will manufacture boxboard material for shipping containers from pine and hardwood pulp; plans developing a model village to contain some 500 employee homes near present town of Santee.

RAVENEL — Ravenel Lumber Co., incorporated with H. E. Kirven, president, capital $15,000, operates sawmills.

ST. MATTHEWS—Extension — Tri-County Electric Co-operative plans construction of rural electric lines, cost $25,000.

YORK — White Rose Canning Co., incorporated with G. C. McCelvey, president, operate canning.

TENNESSEE

CHATTANOOGA—Improvements—Pennsylvania-Dixie Cement Corp. plans improvements to plant at Richard City, Tenn., at cost of $3,000,000.

CHATTANOOGA—Terminal— Southeastern Greyhound Lines, Inc., plans post war construction in Chattanooga of a bus terminal and garage at cost of $300,000.

KINGSPORT—Addition — Contract let for plant addition for Tennessee Eastman Corp., subsidiary of Eastman Kodak Co.; increase capacity of acetate rayon.

KINGSPORT—Shop—Mason & Dixon Lines, Inc., plans reconstruction of shop.

MEMPHIS—Building—Southland Paper Co. has plans for building warehouse and sales and general office; cost $90,000.

KNOXVILLE—Paper Mill — Bids received for construction of paper mill for O. B. Andrews Co., Kingston Pike, Knoxville; cost $200,000.

MOUNTAIN CITY—Rural Line — Mountain Electric Cooperative has REA allotment of $300,000 which includes $150,000 for purchase and rehabilitation of 129 miles of existing lines.

TEXAS

AUSTIN—Warehouse — Walter Tips Company plans construction of two-story addition to warehouse.

BEAUMONT—Plant—Jefferson Rice-Drying Corp., incorporated with capital of $100,000 with John F. Pipkin, president, will take over and operate rice-drying plant.

BEAUMONT—Shop Building—International Derrick & Equipment Co. plans construction of shop building.

BEAUMONT—Building—Contract has been let for erection of $50,000 Kinsel Motor Company's building.

BELLVILLE—Locker Plants—Contract let at $66,000 for construction of two locker plants; Brazos Valley Refrigeration Co-operative, Inc., owners.

CHILDRESS—Warehouse—Panhandle Compress & Warehouse Co., Lubbock, plans construction of warehouse, cost $18,000.

CLEBURNE—Electric — Johnson County Electric Cooperative Association has REA funds of $50,000 for construction of rural electric line extensions.

COLLEGE STATION—Plant, Etc.—City, S. B. Cook, Mayor, plans light plant and electric distribution system; cost $148,000.

CORPUS CHRISTI—Lines — Houston Natural Gas Corp., Houston, purchased distribution lines of the Nueces Corp. and Richardson Petroleum Corp.; Houston Natural Gas has contracted to construct a new 38½-mile transmission line, tapping large gas reserves owned by the company in Nueces county.

CORPUS CHRISTI-ALICE—Gas—Contract let for gas transmission line from Corpus Christi to Alice; 12-inch transmission line; Houston Natural Gas Corp., owners.

CORSICANA—Rural Line—Navarro County Electric Cooperative, Inc., has REA allotment of $125,000 for expansion.

DALLAS—Railroads—Southern Pacific and Santa Fe Railroads will construct railroad freight line through South Dallas.

DALLAS—Remodeling—Western Auto Supply Co. let contract for remodeling bus building.

DALLAS—Sheet Metal Shop—Contract let for construction of sheet metal shop, T. G. Baynes, owner.

DALLAS—Building—Alexander Motor Co. plans construction of building, cost approximately $500,000.

DALLAS—Garage & Loading Docks—Yellow Transit Co. plans construction of garage and loading docks.

DALLAS—Building — Lusius E. O'Bannon plans constructing motor sales building.

DALLAS—Building — Dallas Railway & Terminal Co. has let contract at $78,480 for bus inspection building.

DENISON—Cheese Plant—Kraft Cheese Co. plans construction of cheese plant.

DENTON—Electric — Denton County Electric Cooperative has REA funds of $50,000 for extensions to rural electric lines.

EASTLAND—Newspaper—H. G. Vermillion, former publisher of Winkler County News at Kermit, purchased Eastland County Record.

EDINBURG—Packing Plant — Contract let for building, Donna Fruit Co.

EDINBURG—Bus Building — Contract let for construction of bus building.

EL PASO—Warehouse—Momsen-Dunnegan-Ryan Co. plan construction of warehouse costing approximately $200,000.

EL PASO—Foundry Building—Texas Aluminum Casting Co. plans construction of foundry building.

EL PASO—Warehouse — Contract let for construction of warehouse and addition to bottling plant; cost $50,000; Magnolia Cocoola Bottling Co.

FORT WORTH—Warehouse—Contract has been let at $12,640 for warehouse for Fort Worth Paultry & Egg Co.

(*Continued on page* 68)

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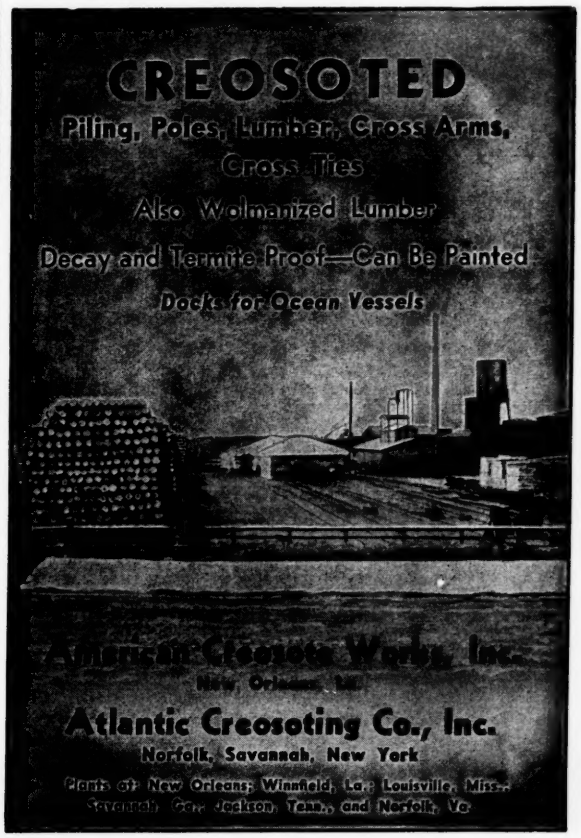


Southern Industrial Expansion

(*Continued from page 66*)

FORT WORTH—Warehouse—Contract let for construction of warehouse, cost approximately $20,000; Builders Material Supply Co., owners.

FORT WORTH—Pump Control—Contract is let at approximately $119,000 for installing automatic fire pump control at Fort Worth Aircraft Assembly Plant.

FRATT—Plant—Haggard's Cookie & Cracker Co. plans construction of fireproof building.

GALVESTON—Dredging—Contract let for dredging Intracoastal Waterway from Colorado River to Matagorda Bay.

GALVESTON — Broadcasting Station — KLUF Broadcasting Co., Inc., plans post-war broadcasting station, cost $40,000.

GILMER—Electric Lines—Contract let at $99,422 for construction of 138 miles of rural electric lines for Upshur Rural Electric Cooperative Corp.

HARLINGEN—Broadcasting Station—Valley Publishing Co., Harlingen, plans post-war broadcasting station, cost $40,000.

HENDERSON — Electric — Rusk County Electric Cooperative has REA funds of $50,000 for extensions.

HOUSTON—Building — The White House plans construction of building, cost approximately $50,000.

HOUSTON — Plant Annex — A. O. Smith Corp. let contract for 135-foot R. R. track and 12,000 square feet concrete for vessel plant.

HOUSTON—Plant — Contract let for rice-drying plant for Southern Warehouse Corp., cost $150,000.

HOUSTON—Machine Shop—National Flame Treatment Co. will construct masonry machine shop, cost $15,000.

HOUSTON—Plant — Davis Machine & Instrument Co. plans construction of machine plant.

HOUSTON—Plant—Krausse Manufacturing Co. plans using 25 acres recently acquired for plant expansion; will let contract soon on first unit to cost $75,000.

HOUSTON—Building — J. Frank Hutchens plans construction of building, cost $20,000.

HOUSTON—Building — Houston Coca-Cola Bottling Company acquired site, 10 acres, between Bissonent and Richmond, north of West University Place, for future development.

HOUSTON—Burners—Mosher Steel Co. has contract for 250 steel burner houses for use in the Panhandle of Texas and in New Mexico, about $800,000.

HOUSTON—Building — A. I. Martin Welding Co. acquired site for erection of a $30,000 steel and brick building.

HOUSTON—Plant—C. G. Dyson and John E. Dyson plan construction of meat processing plant, cost approximately $43,000.

HOUSTON—Plant—J. H. Sullenger & Co. plans construction of sausage plant to cost approximately $140,000.

HOUSTON—Machine Shop—Davis Machine & Instrument Co. plans construction of one-story shop building.

HOUSTON—Warehouse — Crumpacker-Covington will construct warehouse to cost $10,000.

HOUSTON—Station—Houston Lighting and Power Company will erect power sub-station to supply underground service of downtown Houston at cost of $1,000,000.

HOUSTON—Plumbing Shop—W. T. Barnhill let bid for construction of plumbing shop.

HOUSTON—Addition—Contract let for addition to Baker Oil Tool Company.

HOUSTON—Crusher Pit — Contract let for construction of crusher pit and other facilities at present Rheem Manufacturing Company plant.

HOUSTON—Broadcasting Station — KTRH Broadcasting Co., Rice Hotel, Houston, plans post-war construction, frequency modulation radio broadcasting station, cost approximately $40,000.

HOUSTON—Shop Building—Oil Field Machine & Supply Co. will construct shop building; cost $10,000.

HOUSTON—Improvements—Houston Lighting & Power Co. applied for permission to improve its 66,000-volt power line across Burnett Bay.

HOUSTON—Shop Building — C. R. Baum will construct shop building to cost $12,500.

HOUSTON—Building & Warehouse—Layne-Texas Co., Ltd., plans construction of business building and warehouse.

HOUSTON—Broadcasting Station — Houston Printing Corp., Houston, plans post-war construction radio broadcasting station; cost $40,000.

JUNCTION—Lines—Kimble Electric Cooperative, Junction, have REA funds of $100,000 for construction of rural electric lines.

LAWARD—Lines—Jackson Electric Cooperative has REA funds for construction of rural electric line extensions, to cost approximately $100,000.

LAGRANGE—Electric Lines—Fayette Electric Cooperative has REA funds of $50,000 for extensions of rural electric lines.

LIBERTY—Plant—Roxberry Steel Co., New York, will soon call for bids for construction of carbon black plant in Hardin oil field seven miles north of Liberty; cost approximately $400,000.

LUBBOCK—Warehouses — Lubbock Compress & Warehouse Co. plans construction of warehouse at Sudan, cost $18,000; O'Donnell, cost $18,000, and Littlefield, cost $18,000.

LUBBOCK—Plant Building — Contract let at $71,434 for construction of power plant building for city.

MARSHALL — Lines — Panola-Harrison Electric Cooperative have REA funds of $50,000 for extensions to rural electric lines.

MART—Rural Line — Limestone County Electric Cooperative, Inc., has REA allotment of $110,000.

McALLEN—Concrete Plant—Valley Ready-Mix Concrete Co. will construct concrete plant.

MERKEL—Lines—Contract let at $50,756 for constructing 80 miles rural electric lines; Taylor Electric Cooperative, Inc., owners.

MULESHOE—Lines — Bailey County Electric Cooperative have REA funds of $150,000 for extension to rural electric lines.

ORANGE—Plant—Virginia Bridge Co. has contracted to supply 3,000 tons of structural steel for 14 building for nylon salt plant to be operated by E. I. du Pont de Nemours & Co., Wilmington, Del.; shipment of finished steel to Orange will be made entirely by rail; Tennessee Coal, Iron & Railroad Co., United States Steel subsidiary at Birmingham, Ala., will roll all sections possible, but wide flange steel necessary for the Orange program will come from Carnegie-Illinois plants of United States Steel at Gary, Ind., via Virginia Bridge Co.'s channels.

PALACIOS—Plant — Garrett Construction Co. has priority for freezing unit to cost $125,000.

PALACIOS—Plant—City plans construction of quick freese plant, to cost approximately $150,000.

PERRYTON—Electric Lines—North Plains Electric Cooperative, Perryton, have REA funds of $100,000 for rural electric line extensions.

PORT ARTHUR—Units—Texas Co. will rebuild burned sections of crude battery stills, a wax sweater and chiller room in refrigerations plant.

PORT ARTHUR—Abattoir—I. N. and Ben Liebling plans erection of $75,000 abattoir with capacity of 200 head of cattle daily.

PRATT—Plant—Contract let for rebuilding plant for Haggard's Cookie & Cracker Co.

RUSK—Electric—Cherokee County Electric Cooperative Association, Rusk, has REA funds of $110,000 for extensions to rural electric lines.

SAN ANTONIO—Warehouse—Service Printing Co. plans erection of warehouse.

SHERMAN—Store — Lowes Marine Supply Co. plans erecting business building; cost $25,000.

STAMFORD—Lines—Stamford Electric Cooperative, Inc., have REA funds of $100,000 for extension to rural electric lines.

SPUR—Lines—Dicken County Electric Cooperative have REA funds of $100,000 for extensions to rural electric lines.

TAYLOR—Lines—Taylor Electric Cooperative, Inc., has let contract at $60,756 for construction of 80 miles of line.

VICTORIA—Lines—REA allotted funds for construction of rural electric line extensions, approximate cost $100,000; Victoria County Electric Cooperative.

WALLER—Line—Brazos Valley Refrigeration Cooperative, Inc., for complete construction of two locker plants at $66,000.

WELLINGTON—Electric — Greenbelt Electric Cooperative, Inc., has REA funds of $92,000 for extensions to rural electric lines.

VIRGINIA

ALEXANDRIA—Radio Station — Potomac Broadcasting Corp. will erect radio station in Fairfax County.

BRISTOL—Electric—City approved acquisition of electric power from Tennessee Valley Authority.

FREDERICKSBURG — Garage and Sales Building—Contract has been let for garage and sales building for Young Motors.

FRONT ROYAL—Plant — Skyline Frosted Food Locker, Inc., have been granted priorities for building materials for erection of 500 individual food-freezing units and general food market.

NORFOLK—Improvements—Atlantic Coast Line Railway plans improvements to freight and ticket office.

PULASKI—Plant—Southern States, Pulaski Service, Board of Directors, seeking permit from War Production Board to erect frozen food locker plant.

RICHMOND—Expansion—Virginia Electric & Power Co. have started a program of rural electric extensions, to cost approximately $3,000,000 and cover approximately 3,000 miles of lines.

SMITHFIELD—Abattoir—Smithfield Packing Company is constructing a $350,000 abattoir on an 11-acre tract of land on Highway 10 near Smithfield; slaughter now located Suffolk will be merged with the new plant.

WINCHESTER—Building—George W. Patton will erect trucking terminal.

VIRGINIA — Electric Extension.— Appalachian Electric Power Company, M. C. Funk, Vice President and General Manager, Roanoke, plans extension of electric lines into all rural areas throughout all territory served by the company; orders for necessary materials and equipment are being place; contracts let for building certain lines; program will include, 4,288 miles of rural line in Albemarle, Campbell Grayson, Nelson, Russell, Scott Counties, etc.

WEST VIRGINIA

HUNTINGTON—Improvements — Contract let for replacement of boiler house and obsolete boilers in the Chesapeake & Ohio Railway Company shops, cost $600,000.

PARKERSBURG—Plant — Defense Plant Corporation increased contract with American Viscose Corp. for additional equipment in Parkersburg, cost $360,000.

Monongahelia West Penn Public Service Co. general office, Fairmont, W. Va., plans program of sub-station and lines construction over a period ending in 1949 at expenditure of approximately $6,000,000 in lines, wiring, and farm equipment; other construction to run through 1947, will cost about $737,500 more.

REA ALLOTMENTS

REA has granted following loan allotments to:

Georgia—Little Ocmulgee Electric Membership Corporation, Alamo, $50,000; Middle Georgia Electric Membership Corporation, Vienna, $105,000;

Kentucky—Jackson County Rural Electric Cooperative Corporation, McKee, $50,000; Taylor County Rural Electric Cooperative Corporation, Cambellsville, $50,000; Shelby Rural Electrical Cooperative Corporation, Shelbyville, $50,000; Clark Rural Electrical Cooperative Corporation, Winchester, $50,000; South Kentucky Rural Electric Cooperative Corporation, Somerset, $50,000; Henderson-Union Rural Electrical Cooperative Corporation, Henderson, $60,000;

Mississippi—Southwest Mississippi Electric Power Association, Lorman, $50,000;

Missouri—Pemiscot-Dunklin Electric Cooperative, Hayti, $140,000; White River Valley Electric Cooperative, Inc., Hollister, $120,000;

Missouri—Atchison-Holt Electric Cooperative, Rock Port, $180,000; Platte-Clay Electric Cooperative, Inc., Platte City, $145,000;

North Carolina—Haywood Electric Membership Corporation, Waynesville, $25,000;

North Carolina — Randolph Electric Membership Corporation, Asheboro, $85,000; Wake Electric Membership Corporation, Wake Forest, $186,000; Cornelius Electric Membership Corporation, Cornelius, $119,000; Woodstock Electric Membership Corporation, Belhaven, $230,000;

Oklahoma — People's Electric Cooperative, Ada, $140,000; Cotton Electric Cooperative, Walters, $120,000; Central Rural Electric Cooperative, Stillwater, $170,000;

Oklahoma—Southeastern Electric Cooperative, Durant, $160,000;

South Carolina—Aiken Electric Cooperative, Inc., Aiken, $6,000; Bamberg Electric Refrigeration Cooperative, Inc., $45,000 to construct refrigerated locker plant with food processing slaughtering and storage facilities;

Texas—Bailey County Electric Cooperative Association, Muleshore, $150,000; Stamford Electric Cooperative, Inc., Stamford, $100,000; Dickens County Electric Cooperative, Inc., Spur, $100,000; Kimble Electric Cooperative, Inc., Junction, $100,000.

Texas — Johnson County Electric Cooperative Association, Cleburne, $50,000; Cherokee County Electric Cooperative Association, Rusk, $110,000; Greenbelt Electric Cooperative Inc., Wellington, $92,000;

Virginia—Community Electric Cooperative, Suffolk, $125,000.

TRADE LITERATURE

LEEDS & NORTHUP CATALOGUE

A new 36-page edition of Leeds & Northup Company's catalog, "Apparatus for D-C Resistance Measurements," has been issued. Extensively revised to embody an expanded discussion of equipment and listing of specifications, this publication not only presents d-c resistance bridges, but the standards, galvanometers, accessories, etc., usually chosen for use with them. Instruments for a wide variety of applications will be found here, including models for the most precise measurements, as well as those designed especially for routine testing, student instruction and many others. Write for Catalog E-53, "Apparatus for D-C Resistance Measurements," Leeds & Northup Co., Philadelphia 44, Penna.

KWICK-MIX OFFERS CATALOGUE

The Kwick-Mix 6-S Dandie concrete mixer is shown in more than 20 lithographed illustrations in a new 8-page catalogue issued by Kwick-Mix Company, Port Washington, Wisconsin. The catalogue is available for the asking. The 6-S Dandie is this manufacturer's one-bag size.

INFORMATION ON CONTAINERS IN NEW "GENERAL BOX" ISSUE

Now available, free of charge, is the new issue of "The General Box." This booklet, published by General Box Company, Chicago, is profusely illustrated in color and furnishes valuable information on the container situation today.

Of special interest to many manufacturers in this issue, is the story of the addition of a fifth star. Long noted for its 4-star line of containers, General Box has now added a fifth star in recognition of its expanded facilities for production of corrugated containers.

ROGERS TURRET MILL CATALOG

A 12-page catalog of "Rogers Perfect 36" Vertical Turret Mills is just off the press. It gives the history of 60 years of experience in the development of boring, turning, drilling, and thread-cutting set-ups. It is available for the asking at the sales offices of Rogers Machine Works, Inc., 1807 Elmwood Ave., Buffalo 7, N. Y.

SOUTH BEND LATHE CATALOG

South Bend Lathe Works newest Catalog 9-G, is off the press. It illustrates in full color and describes its line of 9-inch Engine Lathes and Toolroom Lathes, their 9-inch Precision Turret Lathes, lathe tools, accessories, motors and controls, and attachments for special classes of work.

A copy of this 36-page catalog 9-G may be obtained by addressing South Bend Lathe works, 324 E. Madison Street, South Bend 22, Indiana.

CENTRIFUGAL PUMP BOOKLET

Believing that most so-called pump failures are due to misapplications caused by unfamiliarity with some of the basic facts about the pumps themselves, The Deming Company, Salem, Ohio, has issued a 20-page booklet on standard types of centrifugal pumps. The copy and illustrations of this booklet are so practical and helpful as to make the publication more of a text-book than a mere promotional release. Deming will mail a copy to those requesting it.

SPECTROMETER BOOKLET ISSUED

A new 8-page illustrated booklet describing the "Geiger-Counter Spectrometer For Industrial Research" has been announced by North American Philips Company, Inc., 100 East 42nd Street, New York. Written by H. Friedman of the Naval Research Laboratory for one of the trade magazine, the article has been reprinted in booklet form by permission of the Navy Department.

The author discusses in detail the theory underlying X-ray powder diffraction, how the NORELCO Spectrometer works, its performance and applications. Photos, diagrams and curves are used to illustrate the text matter. Geiger-counter tubes, circuits and losses are covered at some length by the author, and an explanation is given of the "flip-flop" counting action.

HARTZELL OFFERS FOLDER

A product of great importance to every industrialist who moves air against pressure is the subject of the first six pages of bulletin No. 1601 of the Hartzell Propeller Fan Company, of Piqua, Ohio, who will gladly send a copy of Bulletin 1601 to anyone requesting it.

NOW AS FAMILIAR AND NECESSARY AS THE FIRST AID STATION

In the middle thirties salt tablets were a novel idea. Today practically all leading industrial plants wouldn't think of eliminating either salt tablets or first aid stations. Both are essential — the one to help prevent accidents, the other to repair them.

When workers sweat, their bodies lose essential salt. This loss causes Heat-Fag, inalertness, fatigue, heat prostrations. Accidents increase. Production goes down.

Morton's Salt Tablets at every drinking fountain provide an easy, simple, effective way to restore this vital salt lost through sweat. The cost is less than a cent a man per week.

In salt tablets, as with other grades and types of salt, Morton is the recognized leader. Order Morton's Salt Tablets and Dispensers from your distributor or directly from this advertisement. Write for free folder today . . . Morton Salt Company, 310 S. Michigan Ave., Chicago 4, Illinois.

MORTON'S DISPENSERS

They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.

800 Tablet size - - $3.25

MORTON'S SALT TABLETS

Morton's Salt Tablets are available either plain or with dextrose.

Case of 9,000, 10-grain salt tablets - - - - - - $2.60

Salt Dextrose Tablets, case of 9,000 - - - - - $3.15

MORTON'S SALT TABLETS

Synthetic Rubber Plants Expected to Stay South

(*Continued from page 45*)

voir of world rubber supply when there was never more than 1,400,000 tons in any previous year.

But who has yet measured the potential capacity for per capita consumption of rubber by the peoples of the world? In 1937 and 1938 it was ten pounds per person annually in the United States, while in China it was only three-hundredths of a pound, and in Russia, one third of a pound. The room for domestic expansion is indicated only in part by the present shortage of tires. Opportunity for expanded world consumption would certainly appear to exceed the foreseeable world supply of both natural and synthetic rubber products.

What It Means To The South

The South has the coal, the oil, the carbon black from natural gas, the limestone, clay, and sulphur required for the production of synthetics, and for the antioxidants, accelerators, and other agents needed to improve natural rubber and to make its handling and fabrication into finished products easier and its service more durable.

The South's bituminous coal production in 1943 was 281,274,000 tons, and its petroleum, 897,955,000 barrels. Thus, the South has nearly fifty per cent of the Nation's bituminous coal, and nearly sixty per cent of the Nation's crude petroleum. The South has approximately sixty per cent of the total natural gas supply, the source of carbon black.

Carbon black from natural gas is essential to the production of synthetic rubber but was not largely used in prewar natural rubber. The South in 1934 produced 584,365,000 pounds of carbon black valued at $19,114,000, 92 per cent of the Nation's supply of 593,421,000 pounds valued at $20,248,000. The War Production Board late in March of this year announced plans to increase the production of carbon black, or "channel" black by an additional 188,100,000 pounds by the end of the year. The industry was granted a AA-1 preference rating to all projects for the expansion of facilities.

Fortunately this industry is using a great deal of natural gas heretofore wasted. For years the oil fields of the South were illumined by burning flares of escaping gas, gas regarded as a useless by-product of the oil industry, which had to be burned to prevent harmful pollution of the air. Today these escaping gases are piped to channel black plants, where the sooty flame is made to impinge upon rows of pipes or "channels." Slow-moving scrapers remove the deposited carbon which finds its way into a common outlet.

Essentially the carbon is a reinforcement. While there are several other reinforcement agents such as limestone and clay, carbon has come to be regarded as the most satisfactory in the manufacture of rubber which must endure stresses for the reason its molecules are extremely small and perfectly round. Substances of flat or irregular molecular construction have less holding power than the round molecules of carbon black. It is also true that carbon black, for its fineness, produces a rubber compound of smoother, harder finish. These qualities are so essential in tire treads scientists are predicting tires in the early future capable of a hundred thousand miles of road use. Tire side-walls may be built of natural rubber, and the treads of synthetic rubber.

In the rubber industry there are many useful rubber products that do not have to endure stresses, and may be compounded of clay, limestone, and salt. These, too, the South has in abundance. Limestone produced in the South in 1943 amounted to approximately a third of the output of the Nation, including Alaska and the insular possessions.

The South produces all the sulphur used in the rubber industry, both natural and synthetic.

While the wartime synthetic Buna-S formula remains a military secret, it is known that its chief ingredient is butadiene, one of the products of the catalytic cracking of gas and oil, to produce 100-octane gasoline for war planes. These "cat cracking" plants have sprung up rapidly since the Government announced its $750,000,000 synthetic program early in 1944. The large integrated high octane, butadiene, and synthetic rubber operation at Lake Charles, Louisiana, alone is capable of producing 60,000 long tons of rubber per year, an amount that could only be matched by 250,000 acres of Far East rubber plantations.

The rubber-like gums obtained by whatever processes (and apparently all of the tire manufacturers will have their own separate formulas after the war) and from whatever sources, are combined in the process of polymerization, which consists of combining the two substances, as butadiene and styrene, until the atoms of the two line up alternately like children holding hands. The new substance, synthetic rubber, has an elasticity not possessed in equal degree by either of the original substances.

Tire-Making Moves South

It is perfectly natural that the industry devoted to the fabrication of tires from synthetic rubber in combination with fabrics of cotton and rayon should follow those industries Southward. The B. F. Goodrich Co. has recently announced a $10,000,000 heavy-duty tire plant under construction at Tuscaloosa, Alabama. The Armstrong Tire & Rubber Co. has started work on $1,500,000 facilities at Natchez, Mississippi, designed to produce a thousand truck tires daily. The Goodyear Tire and Rubber company has announced a $10,000,000 tire plant at Nashville.

Such examples taken from the industrial news of the first quarter of 1945 serve but to indicate the trend toward the building and maintenance of an unprecedented postwar rubber industry, an industry which has definitely gone South.

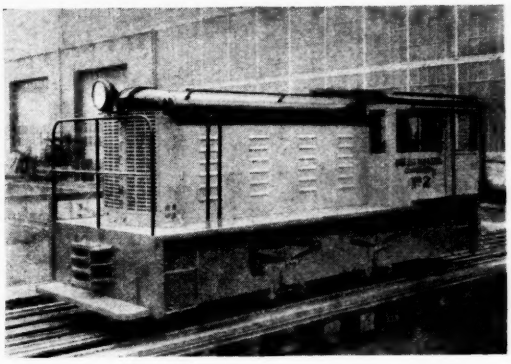
Answering rising military demand, PAW is studying proposals for several more 100-octane gasoline plants.

BETTER INKS BETTER DELIVERIES

No. 2 Now in Service

1943 Rustless Iron & Steel Company placed in service a Whitcomb 12 ton gasoline mechanical locomotive to convey charging cars from the scrap yard to the melting department.

1945 Number 2 placed in service to transfer heats of steel from the melting department to the reheating furnaces of the rolling mill. The unit is identical to No. 1 except it is designed with clearance limitations to operate through a low and narrow tunnel.



Whitcomb has long specialized in serving industry to its specifications. May we help you plan your locomotive investment?

ARMY E NAVY

BLW THE BALDWIN GROUP

DIESEL, GASOLINE, MECHANICAL, OR ELECTRIC DRIVE — *The Products of a Pioneer.*

THE WHITCOMB LOCOMOTIVE CO.

ROCHELLE, ILL.

Subsidiary of THE BALDWIN LOCOMOTIVE WORKS

Science and the South

(*Continued from page* 43)

awards, there were only eight chemists and four physicists connected with industrial concerns. All of these were in the North and East. Dr. Wilson Gee has pointed out most ably that if we are to succeed in scientific research for industry the technical prestige of our southern schools must be built up. There are those in industry who would gladly lend aid by providing fellowships to support worthy students who have the inclination and the qualifications to continue their scientific studies at the post-graduate level. In the distribution of these fellowships on merit there necessarily has been a selection which tends to exclude the less well qualified schools of the South. Some means should be found to increase the incentive on the part of our schools to warrant these awards on a deserving basis.

There is just one more job that must be done by all if privately sponsored research in the South is to accomplish what it has done elsewhere. This is to create reserach mindedness in those to whom we must look for the sponsorship of research projects. It is natural and easy for the initiated to be research minded. To the uninitiated there are doubts that lead to indecision and an over cautious attitude towards the continuation of projects. It is those who stay in research who succeed best. Research is like life insurance! It increases in value with time; it stands ready to meet an emergency only if in force. We must be prepared to deal with the lack of research mindedness wherever we find it. We must be optimistic. We must use all the devices known to public relations work to remove research from the realm of temporary expediency and to establish it as a fixed policy of business.

One hundred and twenty years ago Daniel Webster said, "And there is open to us, also, a noble pursuit, to which the spirit of the times strongly invite us. Our proper business is improvement. Let us develop the resources of our land, build up its institutions, promote all its great interests, and see whether we also, in our day and generation, may not perform something to be remembered."

Turkish Tobacco in South

(*Continued from page* 51)

thrive better with organic types of fertilizer than with artificial fertilizers, such as are commonly used for flue-cured tobacco production. The widespread introduction of such a profitable crop as Turkish tobacco to these farms would require the production of more animal manures and thereby encourage the keeping of livestock. A more balanced agriculture on these farms might result.

The harvesting of Turkish is by the "priming" method. Leaves are harvested as they mature, beginning with the lower and going toward the top of the stalk, and when they are much greener than those of flue-cured tobacco, the lower being removed about seven weeks after transplanting. From six to nine primings, at intervals of from 5 to 9 days, are required.

Leaves then are strung on a twine by the use of a long, thin needle. Since the priming and stringing are done by hand, the handling of some million and a half leaves is required for each acre.

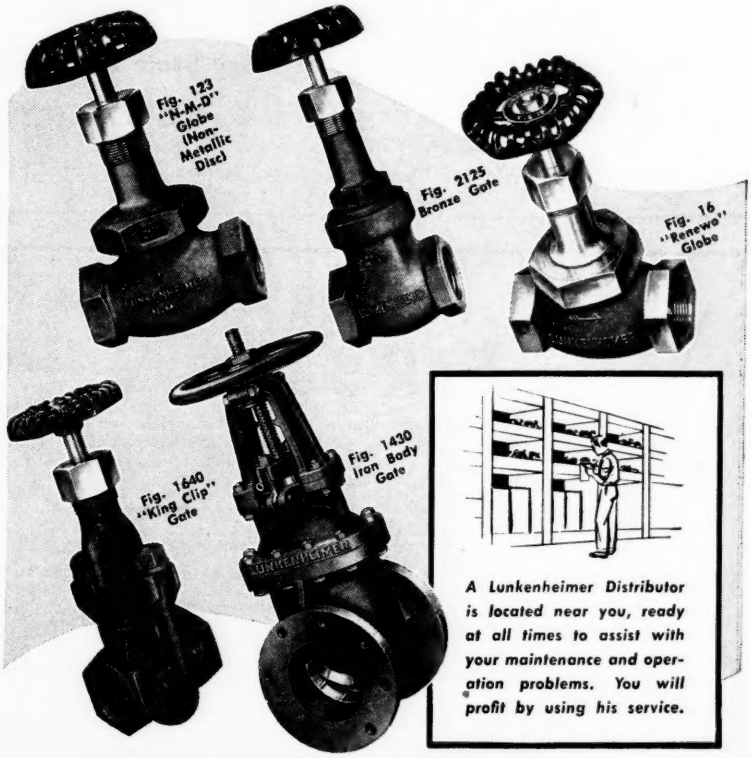
The strings of leaves are suspended between sticks and left to wilt in a cool humid place for 36 to 72 hours, allowing certain desirable chemical changes to take place.

After wilting, the strung leaves are placed on racks and put in the sun to cure for a period of five to 15 days, the time varying according to the compactness and density of the leaves and the intensity of the sunshine.

The sun decreases the moisture from 80 to less than 10 per cent and turns the leaves from green to yellow, red or brown. Afterwards the leaves are stored and the colors become clearer and more uniform. The tobacco is graded, compressed in bales of 75 to 125 pounds each, and is sewed in burlap covers. Afterwards it is stored for two or more years to permit development of the aroma. The American-grown Turkish then is in a proper condition to be blended with domestic tobaccos to produce what is regarded the world over as mankind's best smoke —the American cigarette.

LUNKENHEIMER VALVES STAY TIGHT WITH LESS CARE

With today's production problems and the urgent necessity for conserving fuel, it is more important than ever to avoid wasteful, costly, production-lowering valve leakage. It's good business to maintain a regular check on valves, to make sure that they are *tight* and in proper working order. Maintenance men prefer Lunkenheimer Valves. They know these *quality-built* Valves serve longer and better on the job—are easier to keep tight with a minimum of time, labor, and expense.
The Lunkenheimer Co., Cincinnati 14, Ohio, U. S. A.—*Branch Offices:* New York 13, Chicago 6, Boston 10, Philadelphia 7. *Export Department:* 318-322 Hudson St., New York 13, N. Y.



A Lunkenheimer Distributor is located near you, ready at all times to assist with your maintenance and operation problems. You will profit by using his service.

LUNKENHEIMER VALVES
BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S. P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS

Southern Construction Up for First Six Months

(*Continued from page* 59)

Dixie Cement Corp. plans additions and improvements at Kingsport and Chattanooga, Tenn., and Clinchfield, Ga., cost approximately $3,000,000.

Reynolds Metal Co. plans expanding at Louisville, Ky., cost $2,000,000.

Southern States Cooperative, Inc. acquired site at Baltimore, Md. for $1,500,000 live stock and poultry feed plant.

Contract awarded for $1,500,000 Seagraves, Texas carbon black plant to be operated by Columbian Carbon Co.

Houston Lighting and Power Co. plans $1,000,000 substation to serve downtown, Houston, Texas.

Tennessee Coal, Iron and Railroad Co., Birmingham, Ala., proposes $1,000,000 expansion of tin plate mill.

Alexander Motor Co., Dallas, Texas proposes $500,000 building.

Contract let for $500,000 plant for Hussman-Ligonier Co., St. Louis, Mo.

Smithfield Packing Co., Smithfield, Va. constructing $350,000 abattoir.

Southern Dairies, Inc. let contract for $283,000 dairy, Miami, Fla.

Florida Ramie Products, Inc. let contract for a $250,000 plant at Belle Glade, Fla.

Wheat Grain Drying Cooperative let contract for $225,000 rice drying and storage plant, Wheatley, Ark.

Campbell and Prosser Co. proposes $200,000 citrus canning plant Leesburg, Fla.

Improvements at American Car and Foundry Company's plant, Huntington, W. Va. will cost $200,000.

Sullenger and Co., Houston, Texas, proposes $140,000 sausage plant.

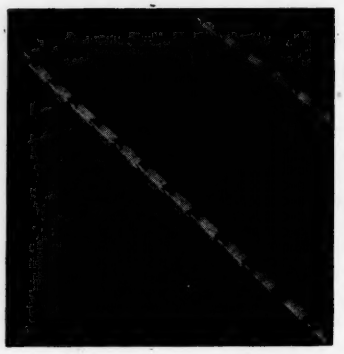
Continental Oil Co., St. Louis, Mo. plans $100,000 administration building and bulk plant.

Tennessee Gas and Transmission Co. let contracts for new compressor stations to raise capacity of its Texas-West Virginia Pipe Line.

INDUSTRIAL AWARDS

(Including Private Utilities)

	June, 1945 Contracts Awarded	June, 1945 Contracts to be Awarded	Contracts Awarded First Six Months 1945
Alabama ..	$135,000	$1,510,000	$67,159,000
Arkansas ..	.....	360,000	1,255,000
Dist. of Col.	.....	.....	1,293,000
Florida ...	1,132,000	320,000	7,089,000
Georgia ...	130,000	11,370,000	3,840,000
Kentucky .	75,000	185,000	2,255,000
Louisiana ..	332,000	3,375,000	18,783,000
Maryland .	328,000	16,855,000	3,754,000
Mississippi	100,000	910,000	5,524,000
Missouri ..	790,000	506,000	2,296,000
N. Carolina	549,000	765,000	2,649,000
Oklahoma .	.....	5,200,000	3,190,000
S. Carolina	132,000	12,250,000	1,970,000
Tennessee .	70,000	2,270,000	15,827,000
Texas	5,228,000	4,605,000	101,983,000
Virginia ...	5,047,000	355,000	6,966,000
W. Virginia	1,160,000	6,000,000	1,762,000
TOTAL.	$15,208,000	$66,836,000	$247,595,000



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Send for attractive paper-weight sample, which is yours for the asking. Catalogues upon request.

Square edge bars for safe footing.
Hexagonal cross bars for neat appearance.

Gary-Riveted Grating :: Gary Stair Treads

STANDARD STEEL SPRING COMPANY
Open Steel Floor Grating Division
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TRY FEDERATED *FIRST!*

With war priorities restricting the delivery of many non-ferrous metals, you may save a lot of time and energy by calling FIRST on one of America's largest smelters and refiners. Our sources of supply and facilities place us in an excellent position to satisfy your requirements promptly.

CALL ON US FOR
- ALUMINUM
- BRASS
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- TYPE METALS
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All of these in all commercial forms. Special Alloys to your specifications.

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AMERICAN SMELTING and REFINING COMPANY
120 BROADWAY, NEW YORK (5) N. Y.
Nation-wide service with offices in principal cities

North Carolina Oil

(*Continued from page* 54)

thousands of acres of land, originally sought for the park, as well as river and sound bottom. Crews have set off dynamite blasts over a wide area and are now moving their work out into Pamlico Sound. The oil doctors explain that the blasts—made with charges of from 50 to 250 pounds of explosives—set off miniature earthquakes. These quakes move through the earth, and a seismograph needle located some distance away records what it is passing through. The big idea is to make the gadget write oil.

Presidential Tenure

(*Continued from page 46*)

schools and business of the Nation. Lincoln did not live to see the day when personal ambitions would be placed above patriotism and when political nominating conventions would become more concerned with perpetuating millions of political jobs than in selecting a Presidential nominee whose patriotism would be above reproach.

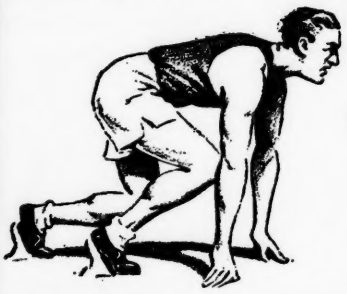
The light was dawning when Grover Cleveland asserted:

"When we consider the patronage of this great office, the allurements of power . . . we recognize in the re-eligibility of a president for re-election a most serious danger to that calm and intelligent political action which must characterize a government by the people."

The spoils system was growing in intensity and scope. Presidents who defied it through sheer force of character stood out as exceptions, and none was able entirely to evade its shackles. In 1916, William Howard Taft made the statement: "I am strongly inclined to the view that it would have been a wiser provision, as it was once voted in the convention, to make the term of President seven years and render him ineligible thereafter . . . Such a change

(*Continued on page 76*)

MAKING RECORDS



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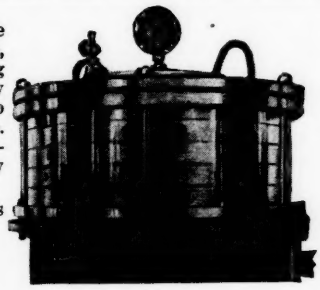
High Quality, Speedy, Uniform FILTRATION

SPARKLER "Horizontal Plate" FILTERS

Under the Sparkler process you obtain maximum clarity and purity in your chemicals, oils, solutions, etc., for minimum outlay. The speed, economy and flexibility of Sparkler Filters stamp them as the best investment in the long run.

Sparkler units are highly adaptable, have longer filtering cycles, are sturdily built, economical to own and operate. Plates are interchangeable and easy to clean.

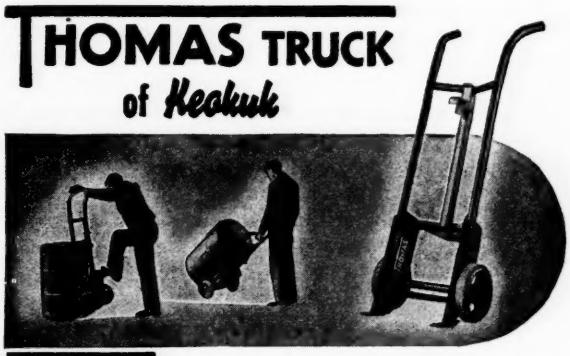
Our field engineers are at your service.



Exposed view of Sparkler Filter without housing.

SPARKLER MFG. COMPANY
367 Lake Street
MUNDELEIN, ILLINOIS

THOMAS TRUCK of Keokuk



Safety One Man

BARREL TRUCK

NO. 90

- Trucker never touches barrel.
- Automatic loading and unloading
- Sliding two-in-one chime hook
- Safe—no backstrain
- Balanced—truck carries load
- Easy rolling—Hyatt bearings
- Lifetime use—welded steel

A Cinch for One Man

Safer, faster, easier way for one man to handle barrels, drums, kegs up to 1000 lbs. Chime hook engages rim and cast steel prongs slide under drum instant trucker pulls truck back. That's all there is to it! Rubber tired wheels.

Write for Complete Literature.

THOMAS TRUCK & CASTER CO.

4586 Mississippi River, Keokuk, Iowa

SUPERIOR FACILITIES

SHEET STEEL PRODUCTS

WE ARE PREPARED TO OFFER MOST EXACTING METHODS

The benefits of new and improved methods assure entire satisfaction to those who entrust their problems to our plant.

THE MOST CAREFUL PRODUCTION

We apply intelligent planning and engineering skill in solving your problems. Our background comprising more than forty years of experience and expert workmanship, offers fine facilities for a high order of production.

DIXIE MFG. CO., INC. 1314 RUSSELL ST. BALTIMORE 30, MD.

Presidential Tenure

(Continued from page 75)

would give the executive greater courage and independence in the discharge of his duties. The absorbing and diverting interest, taken in the re-election of the incumbent by those federal civil servants who regard their tenure dependent upon his, would disappear and the efficiency of administration . . . would be maintained."

These expressions by Cleveland and Taft came from men looking outward from the Presidential environment. They cannot but leave the impression that the Constitutional Fathers, in their zeal to protect the sovereignty of the people, left that sovereignty vulnerable to a more deadly menace through inability to pierce the veil of the future. That they considered protective restrictions necessary in the choice of President is to be seen in the Constitution itself. It was deemed wise, for example, to limit Presidential possibilities to those who had become 35 years old, who were natural born citizens, and who had resided within the United States at least 14 years. These were definite restrictions upon voting choice.

It is obvious that the octopus of the spoils system must be curbed in some manner. If that curb can be effected elsewhere than at the fountainhead of all patronage, the Presidency, such a formula has yet to be brought forth. Few will be so partisan as to deny that the idea of indispensability of any man in a government such as that of the United States is incompatible with its principle that government shall be by law and not by personality. Constitutional tenure restriction would insure adherence to that principle.

It is true that a single six-year term might be too long for a bad executive, too short for a good one to institute salutary policies. The term length to be set is worthy of profound study. Probably nowhere could be found better guidance in this than in final advice left to posterity by Thomas Jefferson, well called the Father of American Democracy. In his memoirs, after a lifetime devoted to the cause of the common man and after experiences surely as rich as those of any other in dealing with the complexities of government, he left this guide post:

"My wish was that the President should be elected for seven years and be ineligible afterward. But the practice adopted, I think, is better; allowing his continuance for eight years, with liability to be dropped at halfway of the term, making that a period of probation . . . Though this amendment has not been made in form, yet practice seems to have established it. The example of the Presidents voluntarily retiring at the end of their eighth year and the progress of public opinion that the principle is salutary, have given it practice in the form of precedent and usage; in so much that should a President consent to be a candidate for a third election I trust he would be rejected on this demonstration of ambitious views . . ."

MOVE MATERIALS FOR WAR AND PEACE IN *Fulton* WATERPROOF COTTON AND BURLAP PAPER LINED BAGS

In these times bag production is war production. Our plants have supplied millions of sand bags as well as various other items for use in combat areas. Behind the lines, supplies of food and other materiel are transported thousands of miles in bags specially designed to protect contents against hazards of rough handling, moisture and insects. Back here at home bags must move a long list of essential commodities ranging from small machine parts, through dozens of items of food, feed and produce to the hygroscopic chemicals requiring special waterproof packages. Many Fulton Waterproof Paper Lined Bags are replacing containers made of critical materials—metal drums, wooden boxes and barrels.

The output of our plants will continue to be devoted to these essential requirements until Victory itself is "in the bag."

FULTON BAG & COTTON MILLS

Manufacturers since 1870

Atlanta St. Louis Dallas
Minneapolis New York New Orleans Kansas City, Kan.

Gates—Intake, Sluiceway and Spillway

Hydraulic Turbines — Francis and Propeller Types

Rack Rakes

Trash Racks

Valves—Pipe Line and Penstock

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NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY

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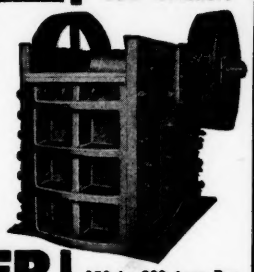
GRUENDLER CRAFTSMANSHIP
Serving Industry over 50 Years

Peak Production at Low Cost
Manufacturers of Limestone Pulverizers, Gravel or Rock Crushing and Screening Plants, Conveying and Screening Equipment.

Write for Data and Illustrated Bulletins about our Lifetime Crushing Equipment

GRUENDLER
CRUSHER *and* PULVERIZER CO.
2915-17 North Market St., ST. LOUIS (6), MO.

Heavy Duty Jaw Crushers



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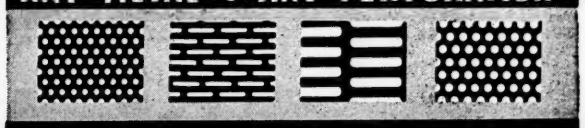

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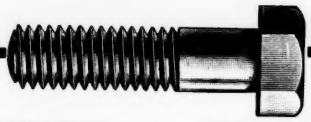

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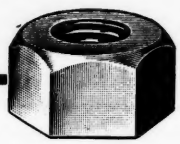

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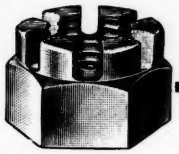

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Citrus Pulp Cattle Feed

(*Continued from page* 50)

minerals difficult to obtain in the average grazing land in the South and particularly in Florida.

The Kuder method of processing is so designed as to retain all the natural goodness that nature and the ingenuity of agricultural scientists have devised. Food value and minerals in a highly digestible form are thereby provided in this product of the Florida Citrus industry. In addition to the dry citrus pulp feed, his industries are now manufacturing citrus molasses from the press waters coming from the peel, and essential oils from the outer rind of the peel before it is dehydrated.

The success of the Kuder Citrus plants, all of which are located in Polk County, Florida, attracted the interest of canners and other individuals which resulted in the establishing of several other plants within the state until now the combined state production of these plants has a capacity of approximately 100,000 tons of dry citrus pulp feed, 8,000,000 to 9,000,000 gallons of citrus molasses, and 300,000 pounds of essential oils. Of this quantity, the Kuder industries, alone, produce approximately 50 per cent.

If it were not for this industry, it would cost the canners of the state thousands of dollars annually to dispose of this waste refuse which would also create a constant health hazard. In addition to this saving, the canners are paid thousands of dollars annually for their refuse at the mills and the cattlemen and dairymen of Florida are receiving a supply of feeds manufactured locally which would require approximately 4,327,000 bushels of corn to replace. Although Florida is not a corn or hay producing state, it has a total population of 1,159,000 dairy and beef cattle. Therefore, practically all of its feed, with the exception of native grasses, has to be imported into the state. This industry alone, developed from what was a waste material a few short years ago, has played a great part in furnishing the local cattlemen with sufficient feeds—thereby releasing thousands of railway cars, trucks, and other equipment so badly needed by the Government to further our war effort.

Texas Wool Plant

(*Continued from page* 53)

and fine, or long and coarse. They operate at slow speed. The rollers are covered with metallic garnet wires, four to eight points per inch on the first licker, so as to unfelt the wool gradually. The wool continues through another set of rollers, dividers and morels which remove any trash and reduce the fiber to a clean sliver. The final roller has an offset or knee, and its surface is studded very closely with fine wires. Working in connection with this large roller are several small rollers also having off-sets. These work in opposition to the large roller so that the broad carded bat on the large cylinder comes off in the form of indi-

(*Continued on page* 80)

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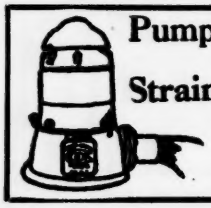
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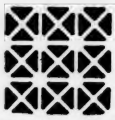
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Texas Wool Plant

(*Continued from page* 78)

vidual slivers. The next roller is a doffer at the end of which is a doffer comb working on an eccentric through a plane of about 60 degrees and making 1,000 strokes per minute, taking fiber from the doffing roll and discharging it as a web into a boiling head, thus reducing it to an endless sliver which is wound into a ball.

Another process known as backwashing removes any impurities and the dingy appearance of the slivers. Fed through a gill box, the strands resume their fluffy appearance, and wind them into balls of 15 to 24 pounds depending on the type of machine used, by combining four strands of sliver into one new strand for the ball. This process is performed on what is known as a punch ball machine.

From the punch ball machine the strands pass through combs which remove the short fibers, or moil, and leave the long strands parallel, and the slivers in the required commercial form. These are wound into balls of regulation size ready for marketing as tops.

Such, in general and without minutia, is the beginning of what promises to become a giant new Southern industry, combining abundant and varied native wool fibers into marketable form.

Future expansion of the tops industry is not the limit of the vision of W. M. Stephens, San Antonio public relations representative of Southwestern gas producers who supplied material for this article. Says Mr. Stephens:

"This plant is but the beginning of possible future developments in the wool industry which might reasonably be expected to include spinning, weaving, the complete processing of virgin wool into finished products, in an area which has both fuel and raw material, together with other natural advantages, within easy reach of each other."

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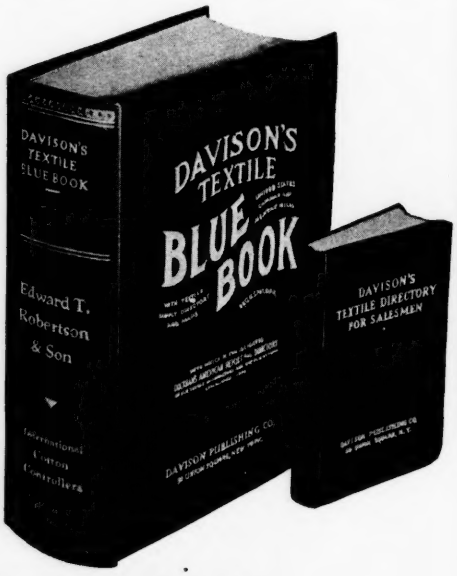
Old books are obsolete—expensive to use and unreliable! An enormous number of changes and great mass of new data is now available.



DAVISON PUBLISHING COMPANY

Executive, Production and Sales Offices at RIDGEWOOD, NEW JERSEY, U. S. A.

Ingalls' War Record

(*Continued from page 47*)

for Great Britain, have proved themselves real fighters.

The Chaser, in a running battle with a Nazi sub wolfpack on the north Russian convoy route, helped sink at least two U-boats and damage others as British pilots in open cockpit planes fought snow squalls to get at the underseas raiders.

The Pursuer played a leading part in saving a valuable Atlantic convoy, according to an article in the Illustrated London *News*. Four Grumman Wildcats from her flight deck intercepted seven attacking German planes, shot down two and hit a third before returning safely.

A letter from an Army captain with an anti-aircraft battery pays tribute to the USS Arthur Middleton. "I wish I could tell you the whole story, but it has never been published and I am not privileged to divulge the details," the captain wrote. "I can say, however, that she is a beautiful, fast, rough, tough ship, and the Ingalls Shipbuilding Corporation may well be proud of her service." The Middleton was grounded in the Aleutians for 80 days, but lived to fight again.

The Decatur, Ala. yard built the first ocean-going cargo vessels ever constructed on the Tennessee River. These ships, 258 feet long, were sent to war zones from the shipyard which is 1,350 miles, by water, from the Gulf of Mexico.

The fabrication plants at Birmingham and Pittsburgh also take an important part in this all-out drive for victory. Steel fabricated at Birmingham moves down a 350-mile "assembly line" to the Pascagoula yard, where Ingalls pioneered the 100% welding of big ships. These fabricating plants also supply "tailored" steel for the Decatur yard, and, at the plants themselves, barges are constructed for war duty.

The shipyards were established before the war and definite post-war plans are made to continue their operation when total victory comes.

For example, a luxurious cruiseliner has been designed for service between Paducah, Ky., and Knoxville, Tenn., on the Tennessee River, and various civic organizations throughout the Tennessee Valley area are sponsoring preliminary plans for her construction. This boat will be built at Decatur, where the most up-to-date yachts 90 feet in length and larger also will be constructed.

The Ingalls Iron Works Company, at Birmingham, builds the Ingalls Sea Mule, most powerful marine tug of her size, which is expected to revolutionize the handling of traffic in harbors and on inland waterways.

Other proposed peace-time activities, such as, the production of Diesel-electric locomotives, conversion of war ships, the expansion of repair facilities and construction of luxurious post-war passenger-cargo liners, also are receiving attention even as more and more giant all-welded ships slide down the ways to deliver blows at the enemy.

The Ingalls industries are, quite naturally, proud of their war record. It's a record they plan to uphold in war and peace.

Factory hourly wage rates exceeded all previous records during the first three month of 1945. An increase of 4.1 per cent was scored over 1944 for the same period and prewar average was bested by 62.3 per cent.

The increase over last year was offset by an increase in the output per man-hour so that the productive cost of labor was slightly lower than for a year ago.

Despite this drop in labor cost, the overall cost of manufacturing increased, due to rise in the cost of materials to the highest levels for the war.

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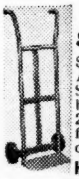

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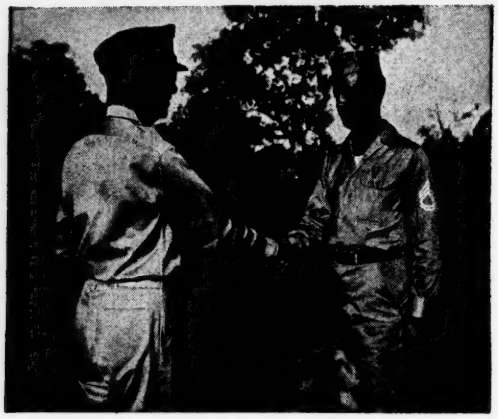

The Pace of Victory Permits Only A Congratulatory Handshake!

American Industry well merits a decoration for its brilliant record in the Mighty 7th! But, as our newly decorated Pacific heroes quickly return to combat, so industrial leaders aren't resting on their laurels. ***Back into Bond action***—they are now busy consolidating recent Payroll Savings Plan gains!

First, many executives are now patriotically working to retain the substantial number of new names recently enrolled during the 7th War Loan. By selective resolicitation, they are urging all new subscribers to maintain Bond buying allotments.

Second, many are also employing selective resolicitation to urge every worker who increased his or her subscription in the 7th to continue on this wise, saving-more-for-the-future basis.

Help to curb inflationary pressures and harvest peacetime prosperity by holding the number of Payroll Savings Plan subscribers—and amounts of individual subscriptions—to the mark set in the Mighty 7th!

The Treasury Department acknowledges with appreciation the publication of this message by

MANUFACTURERS RECORD

★ *This is an official U.S. Treasury advertisement prepared under the auspices of Treasury Department and War Advertising Council* ★

It doesn't make sense, folks

A man's a fool to go around with his pants pocket burning with extra folding money when he ought to buy an extra Bond, because that loose lettuce is the stuff inflation is made of. When that extra dough goes hunting for civilian goods (that are as hard to find as Crosby in a tuxedo!), it tends to push up prices. Besides, it doesn't make sense when twelve million kids are fighting our battle for any of us to hike up the cost of living by buying anything we can live without.

Bob Hope

ONE PERSON CAN START IT!

You give inflation a boost . . .

—when you buy anything you can do without

—when you buy above ceiling or without giving up stamps (Black Market!)

—when you ask more money for your services or the goods you sell.

SAVE YOUR MONEY. Buy and hold all the War Bonds you can afford—to pay for the war and protect your own future. Keep up your insurance.

HELP US KEEP PRICES DOWN

A United States War message prepared by the War Advertising Council; approved by the Office of War Information; and contributed by this magazine in cooperation with the Magazine Publishers of America

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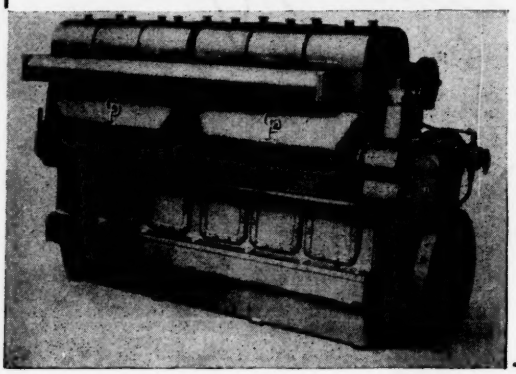

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HP	Make	Volts	RPM.	Type
400	West.	2200	435	CW
260	Burke	2200	600	EMV-65
260	Burke	440	600	EMV-65
150	West.	2300	490	CW
150	West.	220/440	490	CW
50	Chandeysson	440	1800	
50	West.	440	1145	HF
50	West.	220/440	860	CW
30	West.	220	900	CW
30	West.	220/440	860	CI
30	West.	220/440	787	CI
25	West.	220	720	CW
20	West.	220	575	CW
20	Allis Chal.	440	1130	—
15	West.	220	870	CW
15	G.E.	440	845	I-8
5	West.	220	670	HF

Alternating Current MOTORS 3 ph. 60 cy.

HP	Make	Volts	RPM.	Type
100	West.	440	690	HF
75	West.	440	900	CS
75	Burke	220	900	EM-10
65	West.	440	720	CS
50	West.	440	580	CS
50	West.	220/440	900	CS
50	G.E.	440	1160	KT
40	West.	440	514	CS
40	West.	440	720	CS
35	West.	220	495	CS

TRANSFORMERS—1 ph. 60 cy.

2—150 KVA 2400 v. 240/120 v. G.E.
1—100 KVA 2300 v. 230 v. Standard.
3—75 kva. 2200 v., 220/440 v. Westg.
6—73 kva. 440 v., 205 v. Westg. Rotary.
3—50 kva. 6600 v., 575/220/440 v. G.E.
3—50 kva. 6600 v. 440/220 v. G.E.
3—50 kva. 6600 v., 550/440 v. Allis Chal.
1—50 kva. 2200/1100 v., 220/110 West.
2—50 KVA 2200/1100 v. 220/110 v. Maloney.
2—50 KVA 2200/1100 v. 220/110 v. Packard.
2—25 kva. 2300 v., 230/460 American.
1—25 kva. 2200/1100 v., 220/110 West.
2—20 kva. 2300 v., 230/460 American.
1—20 kva. 2300 v., 110/230 West.
2—15 kva. 2300 v., 230/460 American.
12—10 kva. 2200 v., 220/110 v. G.E.
15—10 kva. 2200 v., 220/110 v. Westg.
84—7½ kva. 2200 v., 220/110 v. G.E.
32—7½ kva. 2200 v., 220/110 v. Westg.

COMPRESSORS

1—630 CFM Bury single stage 100 lb. belt dr. 75 HP Syn. Motor 220/440 v. 3 ph. 60 cy.

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1—150 kw. 250 v. DC 900 rpm. Westg. Gen. dir. conn. to 440 v. 3 ph. 60 cy. Westg. Syn. Motor.

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Bue-Erie Model 10B gas shovel, ½ yd. cap.
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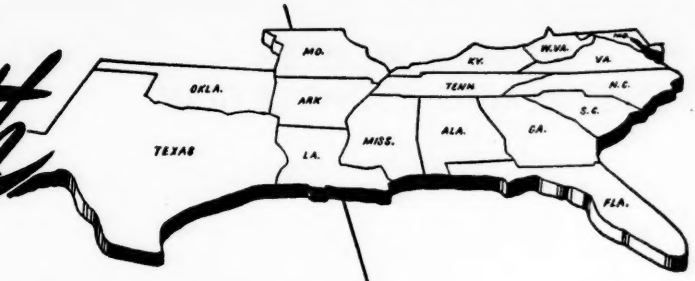

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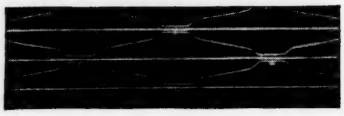

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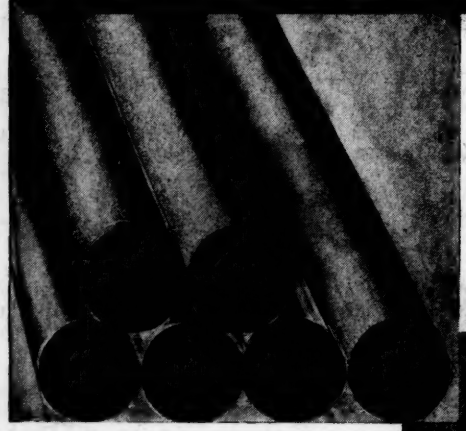

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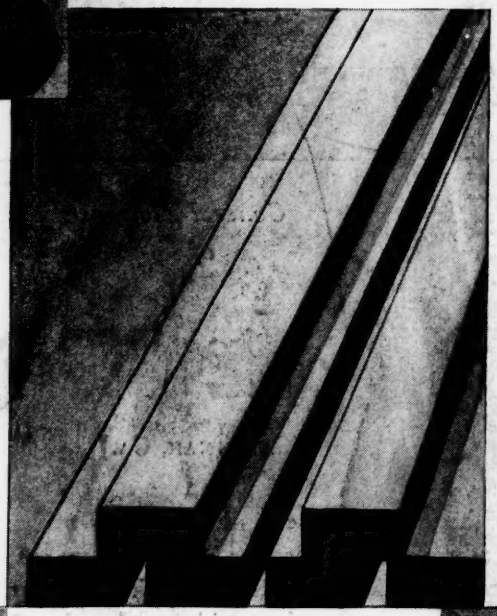

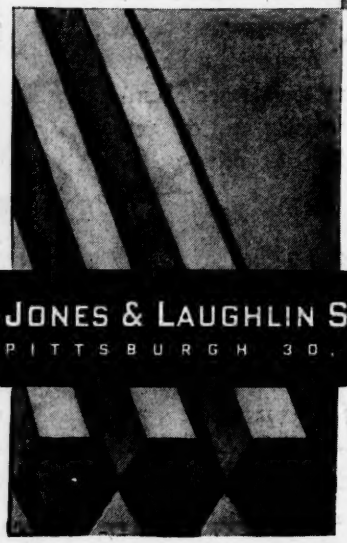

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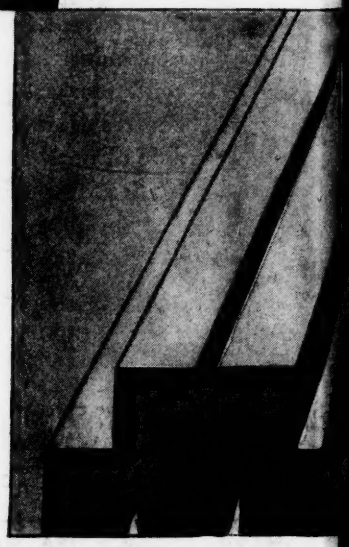

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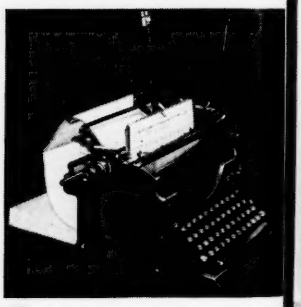

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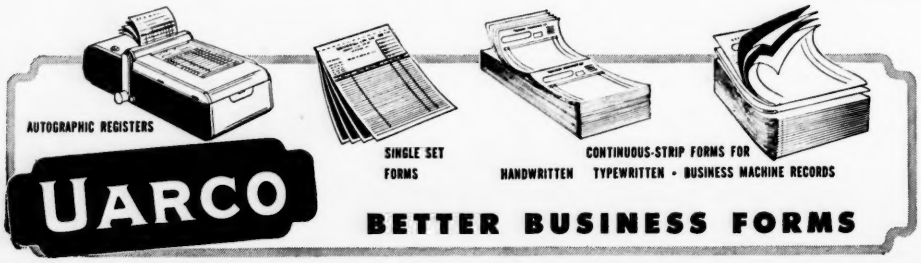

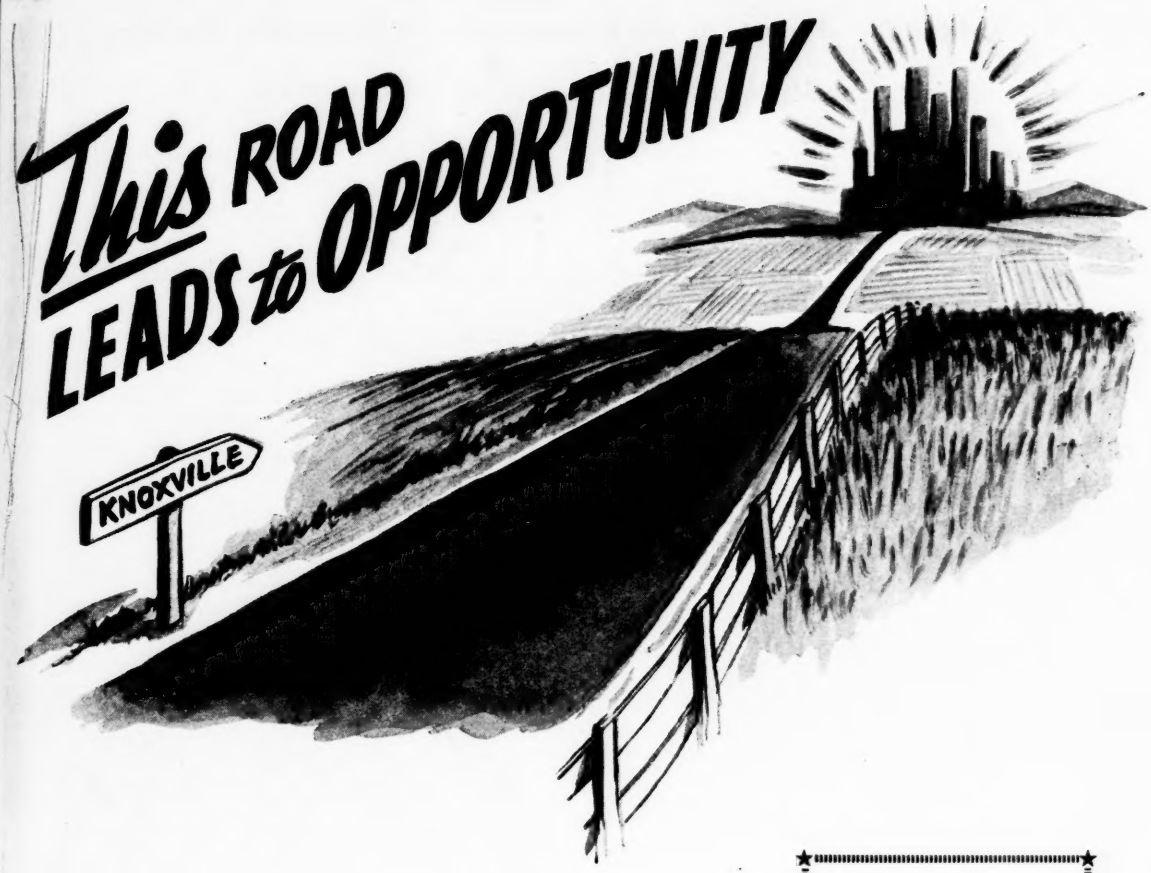

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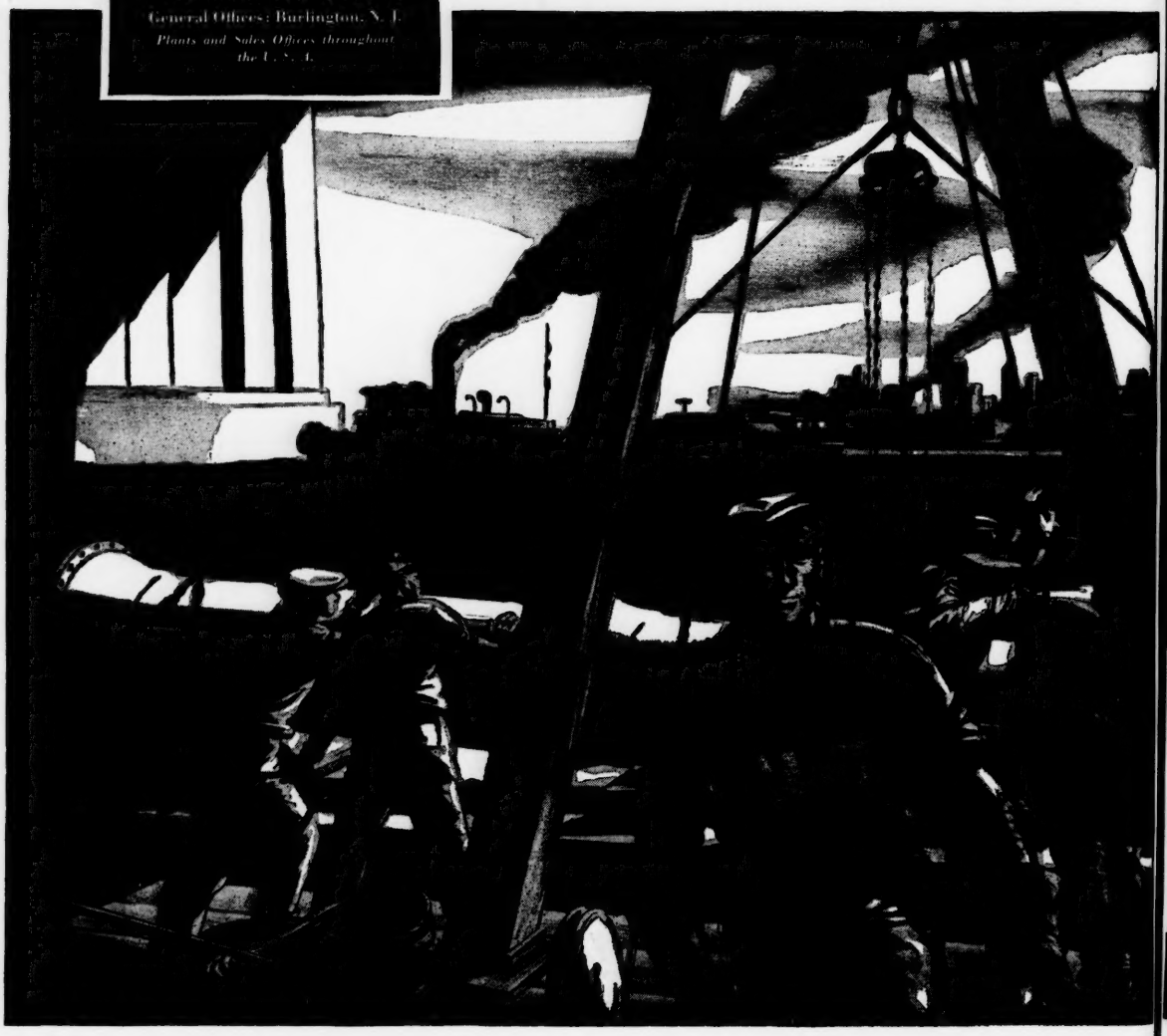

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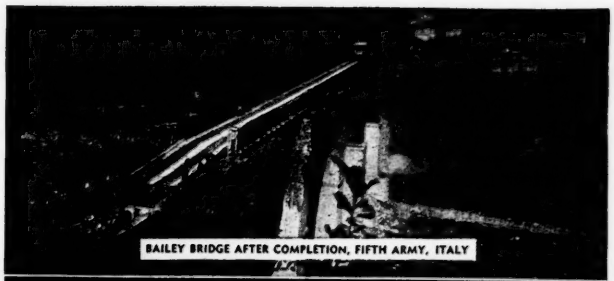

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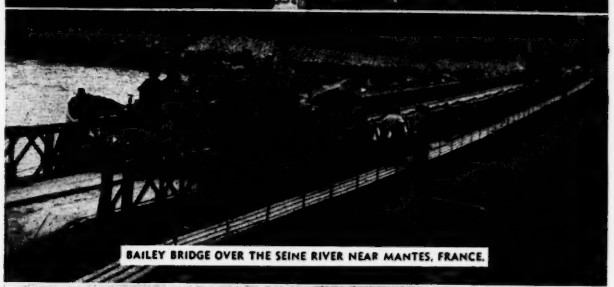

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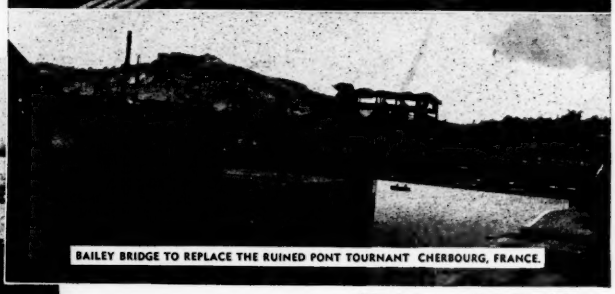

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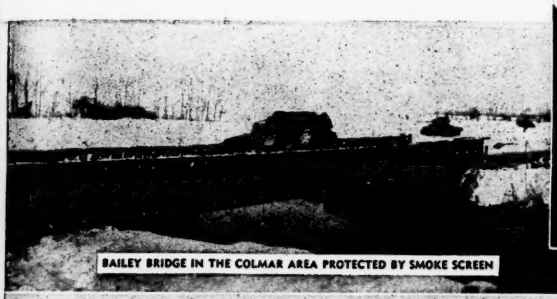

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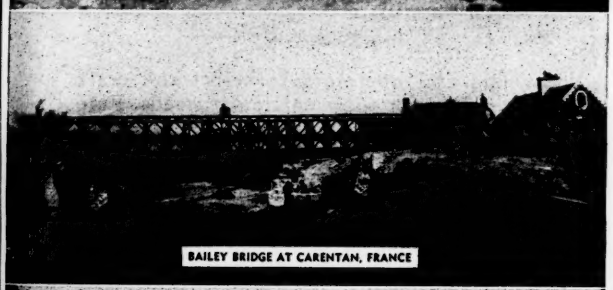

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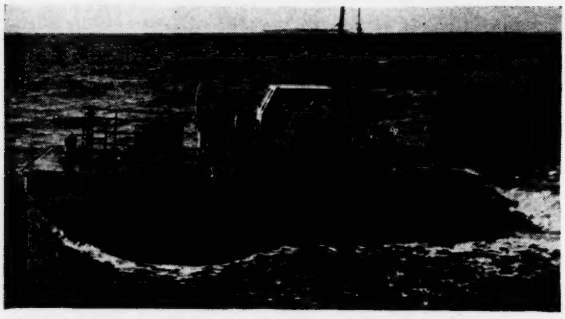
Factory production of standardized designs effects economies in the initial construction and, with less bulk and weight, this powerful "floating engine" is more economical to operate, whether running free or under load. A crew of only two men can operate this all-steel marine tug efficiently.

The Sea Mule is available in four standard models—deep and shallow draft, with and without crew quarters—which allows owners and operators to select the craft best suited for their particular needs. Five types of power plants (Diesel and gasoline), ranging from 660 horsepower to 164, are available and any of the standard models can be equipped with any set of the propulsion engines. Write or phone your nearest Ingalls office for complete specifications, or to arrange a demonstration.



The Sea Mule has been tested thoroughly and proven in war service and this model of the Sea Mule was built by Ingalls to Navy specifications.

INGALLS INDUSTRIES

THE INGALLS IRON WORKS COMPANY, THE INGALLS SHIPBUILDING CORPORATION, The Steel Construction Company, Birmingham Tank Company. Offices at BIRMINGHAM, New York, Washington, Pittsburgh, New Orleans. Shipyards at Pascagoula, Miss., and Decatur, Ala. Fabricating plants at Birmingham and Pittsburgh.